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LEPROSY IN THE 10–13TH CENTURY AD IN EASTERN HUNGARY

ZS. CSÓRI¹, H.D. DONOGHUE², A. MARCSIK³

In the examination of the skeletons of past human populations, the various aspects of the pathological changes provide useful information about their living circumstances and may be indicators of their health conditions. The purpose of this study is two-fold: firstly, to review the published cases of the osseous leprosy in Eastern Hungary, and secondly, to present a new case dated to the 10–13th century of a region of present-day Eastern Hungary. In this region 8 cases have already been published from the 10–12th centuries. The new case of osseous leprosy (Hajdúdorog-Szállásföldek) – from the 12–13th centuries – is housed at the Jósza András Múzeum in Nyíregyháza. The paleopathological investigation was carried out using macroscopic observation and the isolation and analysis of DNA for the detection of *Mycobacterium leprae* was carried out in London. The bone changes were manifested in the skull.

Key words: paleopathology, osseous leprosy, *facies leprosa*, osteoarcheological samples, Hungary, *Mycobacterium leprae* DNA.

INTRODUCTION

The anthropological study of infectious diseases in antiquity is complex and challenging. The interplay of many variables – host resistance, pathogen virulence, cultural practices, ecological settings, malnutrition, crowding – needs to be considered. Accurate interpretation depends on the proper methodology: adequate sample size, accurate age and sex determination, careful recording of the lesion's localization, set in the context of cultural environment so far as it is possible.

The study of specific infectious diseases, including leprosy has been especially emphasized, for these diseases were among the most important selective factors in human populations in antiquity.

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The purpose of this study is two-fold: first to review the published cases of the osseous leprosy in Eastern Hungary from the 10–12th centuries and second to present a new leprosy case dated to the 12–13th century from a region in present-day East-Hungary. In this region 8 cases have already been published dating from the 10–12th centuries (Marcsik *et al.*, 2007). The new case of the osseous leprosy (Hajdúdorog-Szállásföldek) – from the 12–13th centuries – is housed at the Jóna András Múzeum in Nyíregyháza. The paleopathological investigation was carried out using macroscopic observation and the extraction and analysis of ancient DNA for the detection of *Mycobacterium leprae* was carried out in London.

OSSEOUS LEPROSY (PUBLISHED CASES)

Geographical localisation: the region Hajdúság, Nagykunság (Eastern Hungary).

Sites: Sárrétudvari-Hízóföld, Püspökladány-Eperjesvölgy, Ibrány-Esbóhalom, Hajdúdorog-Gyúlás (Fig. 1).

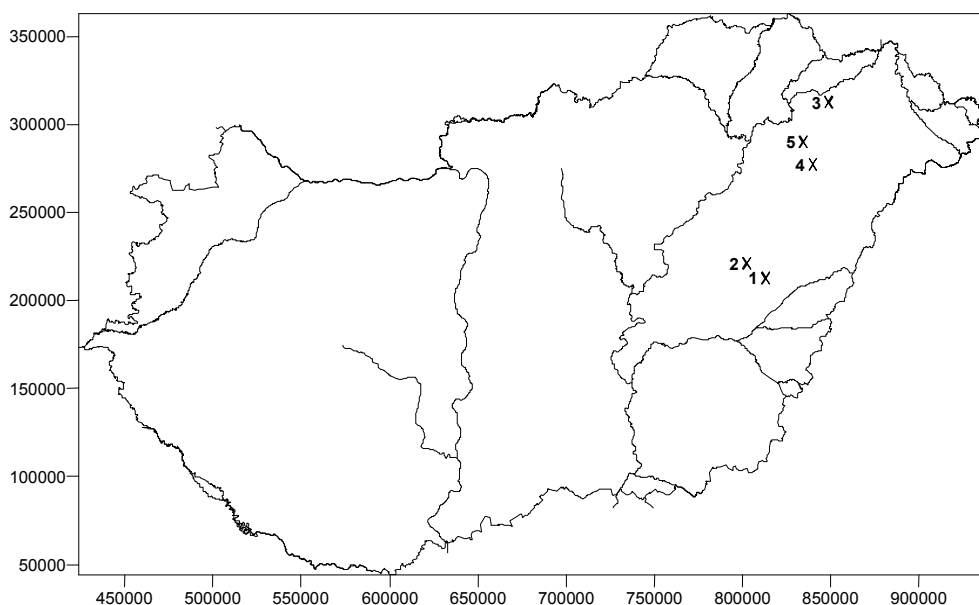


Fig. 1. – Map of Hungary. Sites of skeletons with leprosy: 1. Sárrétudvari- Hízóföld; 2. Püspökladány – Eperjesvölgy; 3. Ibrány – Esbóhalom; 4. Hajdúdorog – Gyúlás; 5. Hajdúdorog – Szállásföld.

1. Sárrétudvari-Hízóföld (10th century): there are two cases with leprosy (one female, one male). The female skull is well preserved showing the signs of facies leprosy, the lateral margins of the pyriform aperture are enlarged and remodeled. The changes of the feet are very characteristic. The metatarsals show

marked diaphyseal remodeling with the signs of osteomyelitis and periostitis, and the peg deformity of some phalanges. Periostitis was developed on the tibiae and fibulae. The second case of leprosy is a male showing pathological alteration in the small bones of the feet, with bony ankylosis. The skull shows only periosteal reaction of the hard palate and the nasal region (Pálfi *et al.*, 2002).

The isolation of *Mycobacterium leprae* DNA from both specimens was possible (Haas *et al.*, 2000).

2. Püspökladány-Eperjesvölgy (10–11th centuries): four skulls have maxillary alterations, however, these alterations are slight, early-stage pathological alterations, and not all cases show the specific changes for facies leprosy. The bones of hands and feet are missing (post-mortally) in all of these cases. In the case of 222, in the inferior meatus of the maxilla and in the nasal cavity slight periosteal new bone formation can be observed. In the other skull (503) the border of the nasal aperture is slightly atrophied and there is periosteal apposition on the inner surface of the maxilla and the nasal cavity (Pálfi *et al.*, 2002). These two skulls do not present macroscopic evidence of leprosy, however, the molecular biological study carried out by Donoghue *et al.*, identified *Mycobacterium leprae* (Donoghue *et al.*, 2002, 2005). From specimens 222 and 503 *Mycobacterium tuberculosis* was also identified (Donoghue *et al.*, 2005).

In a further two skulls slight signs of facies leprosa can also be observed (11 and 429), the samples – from the cavum nasale – were positive for *Mycobacterium leprae* DNA (Donoghue *et al.*, 2005).

3. Ibrány-Esbóhalom (10–11th centuries): on one skull (258) a slight alteration of the facies leprosy can be observed. The lateral margins of the pyriform aperture are enlarged and remodelled. The anterior nasal spina has disappeared due to resorption and instead of the spina there is a groove running to the incisors. Porotic processes of the palatine bone, the transverse palatine suture and the hard palate can be noted. The incisive foramen is very large and broad. There is no sign of periostitis on the lower extremity, the bone of the hands and feet are missing postmortem. Molecular analysis was not carried out. This individual is classified as having “possible” leprosy on the basis of those osseous changes (Marcsik, 2003).

4. Hajdúdorog-Gyúlás (10th century): a male skull (56) shows the resorbed anterior nasal spine and the osteolysis and pitting of the interior nasal concha. The anterior border of the nasal bones is also resorbed, the pyriform aperture is less large than normal. No alterations were seen on the extremity (Marcsik *et al.*, 2007). Molecular analysis was carried out (H.D. Donoghue, unpublished observations) and the result was positive for *M. leprae*. This specimen is classified as having leprosy (facies leprosy) on the basis of the osseous changes and molecular data.

MOLECULAR EXAMINATION OF HAJDÚDOROG-GYÚLÁS (10TH CENTURY, GRAVE 56)

DNA extraction

The recommended protocols of ancient DNA (aDNA) work (O'Rourke *et al.*, 2000) were followed, with separate rooms for different stages of the process. Approximately 67 mg of the palatal sample was crushed in a sterile pestle and mortar, transferred into a 9 ml tube of NucliSens® (bioMérieux) lysis buffer containing 5 mol⁻¹ guanidium thiocyanate solution and incubated at 56°C for 24 hours. Negative extraction controls were processed in parallel with the test sample. The 9 ml tube was boiled for 1 hour, vortex-mixed and allowed to cool. To complete the disruption of the bone scrapings and any pathogenic microorganisms, the sample was then snap-frozen in liquid nitrogen and thawed in a 65°C water bath. This was repeated twice. The sample was spun at 5000g for 15 mins at 5°C and the supernatant carefully removed into a clean, sterile tube. DNA was captured by mixing with 50 µl silica suspension (NucliSens®) and centrifugation. The silica pellet was washed once with wash buffer (NucliSens®), twice with 70% (v/v) ethanol (−20°C) and once with acetone (−20°C). After drying in a heating block, DNA was eluted from the silica using 60 µl elution buffer (NucliSens®), aliquoted and used immediately or stored at −20°C.

DNA amplification and detection

M. leprae DNA was detected by targeting a specific region of the repetitive element RLEP (37 copies/cell). A two-tube nested PCR was used which give an outer product of 129 bp and a nested PCR product of 99 bp (Donoghue *et al.*, 2001). A hot-start *Taq* polymerase was used to minimise non-specific primer and template binding. Negative DNA extraction and PCR controls were processed alongside the test sample. Detection of PCR product was by staining with ethidium bromide and visualising under ultraviolet light. The result was positive using nested PCR (Fig. 2).

Therefore, the specimen – on the basis of morphologic appearance – suffered from leprosy and this diagnosis is supported by the molecular analysis.

NEW CASE OF OSSEOUS LEPROSY

5. site: Hajdúdorog-Szállásföldek (Fig. 1)

At Hajdúdorog-Szállásföldek 1245 skeletons were discovered in 2004. Based on the archaeological finds they are dated to the 12–13th centuries (1141–1235) (Fodor, 2006). During the paleopathological analysis one skull showed serious alterations on its facial bones.



Fig. 2. – Gel of nested PCR for *Mycobacterium leprae* RLEP
Lanes (left to right): 1–2, other positive archaeological samples; lane 3–8: other negative archaeological samples; lane 4: Hajdúdorog-Gyűlász 56 (positive); lanes 9–10: negative controls; lane 11: molecular markers.

Skeleton No. 53 (obj. 560, str. 775)

Sex: male (64–70 years)

This skeleton is well preserved, however, some bones - mainly the bones of hands and feet - are missing postmortally (there are only five phalanges and one metacarpal bone). The age at death and the sex were determined as described by Acsádi-Nemeskéri (1970), Éry *et al.*, (1963), Harsányi-Nemeskéri (1964) (obliteration=5, facies of symphysis pubis=4, trajectorial system of humerus=3, and of femur=4). Because of the older age at death some bones show porotic lesions (iliac fossa, medial surface of the ribs, patellas). Mild osteoarthritis can be noted in the semilunar notch.

The alterations on the facial bones are the following. The margins of the pyriform aperture are rounded and the alveolar maxillary exhibits destructive pathological remodeling. There is a bilaterally symmetrical resorption with sharply defined lateral margins, a mild surface pitting and progressive resorption of the anterior nasal spine (with initial loss of cortical bone and exposure of cancellous bone) and of the prosthion (Fig. 3). The alterations of the nasal surface of the palatine process of the maxilla appear as gross patterns: porosity, pitting with remodelling subperiosteal new bone. The incisive foramens are larger than normal (Fig. 4a). On the lateral side of the nasal cavity and of the maxillary sinus there are smaller exotoses and pitting (Fig. 4b). Pitting and perforations can be seen also on the oral surface of the maxillary palatine process and the palatine bone is total resorbed (Fig. 5). These changes relate to the rhinomaxillary syndrome (facies leprosa).



Fig. 3. – Hajdúdorog-Szállásföldek, 12–13th century, objectum 560.
Facies leprosa – rounded margins of the pyriform aperture due to absorption.



Fig. 4a. – Pitting and porosity on the nasal surface of the palatine process due to inflammation.

Fig. 4b. – Pitting and smaller exostoses on the lateral side of the nasal cavity and of the maxillary sinus.

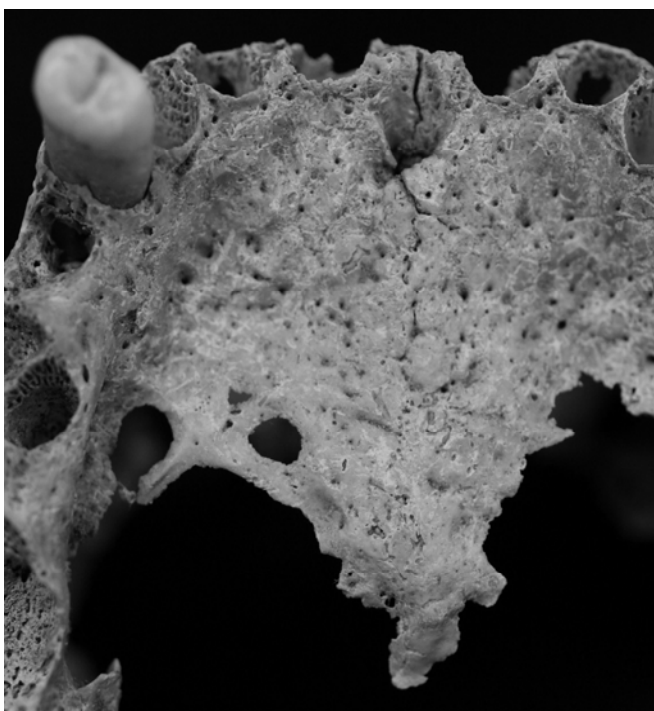
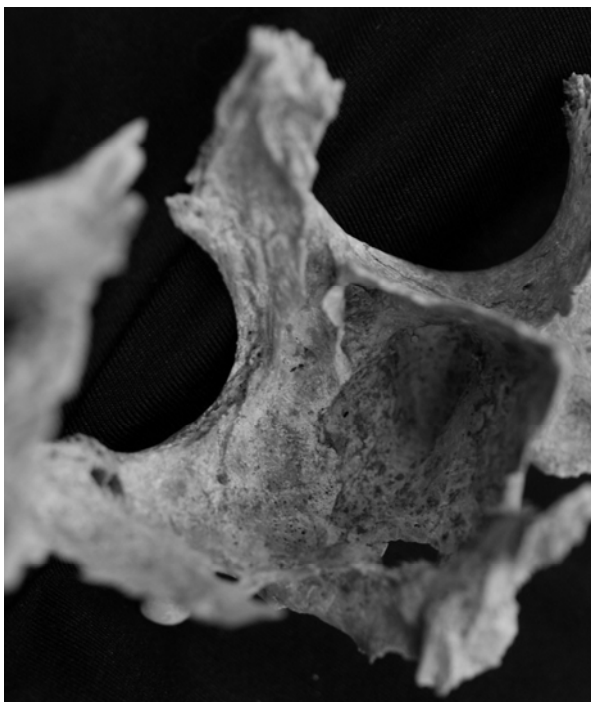


Fig. 5. – Perforations on the palatine process, resorbed palatine bone.

No changes are seen on the infracranial bones, apart from the slight signs of periostitis on the tibiae, fibulae and femora.

SUMMARY

On the basis of paleopathological observations, leprosy appeared in the 10th century AD causing typical osseous morphological alterations. However, it was not widespread, and has been found only at a few archeological sites on the region of the north-eastern part of the Great Plain in Hungary (Marcsik *et al.*, 2007). In southern parts of the country, leprosy has also been found from the 11th and the early 12th centuries (Marcsik, 1998). In later centuries and the Hungarian Medieval Period, based on the appearance of skeletal material, bony manifestations of leprosy are observed less frequently. This is not too surprising as it has been suggested that the leprous patients were isolated from the non-infected population relatively early in Medieval Hungary (Pálfi *et al.*, 2002). Although the skeletons from Hajdúdorog-Szállásföldek dated to the 12–13th centuries, it is possible that the specimen with leprosy is from the early 12th century.

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ASPECTS CONCERNANT LE DÉVELOPPEMENT DES ENFANTS ÉCOLIERS AVEC DÉFICIENCES DE LA VUE SELON LES INDICES CÉPHALO-FACIAUX

ELEONORA LUCA¹, CORNELIU VULPE¹, MONICA PETRESCU¹,
LĂCRĂMIOARA PETRE¹, M. RADU¹

The current study assesses the conformational cephalic-facial development of children with visual deficiency (142 subjects – 92 boys, 50 girls; age 7 to 17) from a special school from Bucharest (1st to 9th grade). The selected sample by age and sex is not statistically significant. In order to assess the position of each child relative to the *standard* population (i.e. the average value of specific indexes for normal children by age and sex) the *normative* variable (distance) “z” has been used. Compared to the normal children, the special school children have a lesser development of the cephalic and facial indexes and a higher development of the width of the forehead, mandible and nose. Relative to a study we previously reported on children with hearing deficiencies from a special school, the children with visual deficiencies have a thinner and lower head and a wider face. Regarding the variability, most of the phenotypes are placed within the interval “ $M \pm \sigma$ ”, but the distribution curve is shifted towards the lower values for the cephalic and the facial indexes, and towards the higher values for the forehead and face widths. It is also possible that a sexual distribution exists for both deficiencies: girls are more frequent among children with hearing deficiencies (106:59) while the boys are more frequent among children with visual deficiencies (102:50).

Key words: visual deficiency, hearing deficiency, normative variable z, cephalic index, facial index.

INTRODUCTION

L'étude d'anthropologie médicale concernant les enfants avec déficiences de la vue d'une école spéciale bucarestoise (les classes I–IX) commencée en 2006 sous la coordination de Corneliu Vulpe a continué pendant les années 2007–2008 (Luca *et al.*, 2007: 111–116, 215–219; 2008: 61–66).

Le présent travail apprécie le développement conformatif céphalo-facial selon des indices céphalo-faciaux des enfants déficients par rapport aux enfants normaux et aussi par rapport aux enfants sourds-muets étudiés pendant les années 2002–2005 (Luca *et al.*, 2004: 13–17).

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MATÉRIEL ET MÉTHODES

Le lot des enfants est composé par 142 sujets de 7–17 ans, dont 92 garçons (7–17 ans) et 50 filles (7–16 ans).

Les données fondamentales sont huit proportions céphalo-faciales (indices conformatifs) individuelles basées sur neuf caractères dimensionnels céphalo-faciaux (Luca *et al.*, 2008: 61–66).

Pour chaque échantillon selon l'âge et le sexe nous n'avons pas un nombre d'enfants statistiquement représentatif. En conséquence nous avons utilisé, comme aussi dans le cas des enfants sourds-muets, la méthode de la comparaison avec une population-étalon de même âge et sexe (Glavce *et al.*, 1990: 11–18). Pour apprécier la position de chaque sujet par rapport à la valeur moyenne du caractère chez les enfants normaux selon l'âge et le sexe nous avons calculé la variable normée (réduite) «z»: $z = (X - M)/\sigma$, où z = la variable normée; X = la valeur individuelle (phénotype du caractère); M = la valeur moyenne-étalon; σ = l'écart – type de la moyenne-étalon (Luca *et al.*, 2004: 13–17; 2008: 61–66).

On a calculé les valeurs moyennes de «z» et les fréquences relatives des phénotypes conformatifs céphalo-faciaux selon le caractère et le sexe des sujets avec déficiences de la vue par rapport aux enfants normaux.

Pour apprécier le dimorphisme sexuel conformatif céphalo-facial et les différences par rapport aux enfants sourds-muets on a utilisé le test Student (t).

RÉSULTATS ET DISCUSSIONS

I. LE DÉVELOPPEMENT CONFORMATIF MOYEN CÉPHALO-FACIAL DES ENFANTS AVEC DÉFICIENCE DE LA VUE (Tableau 1)

Tableau 1

Les valeurs moyennes des indices céphalo-faciaux chez les enfants avec déficiences de la vue par rapport aux enfants normaux («z»)

Caractère	Garçons (N=92)		Filles (N=50)		t ♂vs♀
	X_z	σ	X_z	σ	
I.C.	–0,41	±1,02	–0,49	±0,95	–0,47
I.V.L.	–1,06*	±1,27	–0,75	±1,07	+1,55
I.V.T.	–0,59	±1,01	–0,34	±0,92	+1,47
I.F.P.	+0,84	±1,38	+1,00*	±1,07	+0,80
I.F.Z.	+0,36	±1,17	+0,71	±1,15	+1,75
I.G.Z.	+1,32*	±1,64	+0,94	±1,46	–0,15
I.F.	–0,45	±1,80	–0,60	±1,17	+0,58
I.N.	+0,53	±1,49	+1,05*	±1,52	+2,17*

* différences statistiquement significatives

Les résultats concernant les proportions céphalo-faciales des enfants déficients obtenus par les valeurs moyennes de la distance réduite «z» par rapport aux enfants normaux de même âge et sexe sont en général insignifiantes statistiquement.

Par les indices céphaliques et l'indice facial (eu – eu/g – op, t – v/g – op, t – v/eu – eu et n – gn/zy – zy) les valeurs moyennes de «z» sont négatives chez les deux sexes. Les garçons ont la hauteur de la tête par rapport au diamètre longitudinal (t – v/g – op) plus basse statistiquement significative.

Par les indices fronto-pariétal (ft – ft/eu – eu), fronto-zygomatique (ft – ft/zy – zy), gonio-zygomatique (go – go/zy – zy) et nasal (al – al/n – sn) les valeurs moyennes sont positives. Les filles ont la largeur du front par rapport au diamètre transversal céphalique (ft – ft/eu – eu) et la largeur du nez par rapport sa hauteur (al – al/n – sn) plus larges statistiquement significatives.

En ce qui concerne le dimorphisme sexuel, les filles dépassent visiblement les garçons par l'indice vertico-longitudinal, l'indice fronto-zygomatique et l'indice nasal (pour le dernier le «t» est statistiquement significatif).

II. LA VARIABILITÉ CONFORMATIVE CÉPHALO-FACIALE DES ENFANTS AVEC DÉFICIENCE DE LA VUE PAR RAPPORT AUX ENFANTS NORMAUX (Tableau 2)

Tableau 2

Variabilité du développement conformatif céphalo-facial chez les enfants avec déficience de la vue par rapport aux enfants normaux

Caractère	Sexe	N	< M – 2 σ		< M – σ		M ± σ		> M + σ		> M + σ	
			n	%	n	%	n	%	n	%	n	%
I.C.	♂	92	6	6,52	22	23,91	58	63,04	5	5,43	1	1,09
	♀	50	2	4,00	15	30,00	31	62,00	1	2,00	1	2,00
I.V.L.	♂	92	20	21,74	31	33,70	35	38,04	5	5,43	1	1,09
	♀	50	7	14,00	16	32,00	24	48,00	3	6,00	–	–
I.V.T.	♂	92	9	9,78	19	20,65	60	65,22	3	3,26	1	1,09
	♀	50	2	4,00	9	18,00	35	70,00	4	8,00	–	–
I.F.P.	♂	92	1	1,09	4	4,35	47	51,09	24	26,09	16	17,39
	♀	50	–	–	1	2,00	26	52,00	12	24,00	11	22,00
I.F.Z.	♂	92	3	3,26	9	9,78	56	60,87	16	17,39	8	8,70
	♀	50	1	2,00	2	4,00	30	60,00	9	18,00	8	16,00
I.G.Z.	♂	92	1	1,09	9	9,78	44	47,83	11	11,96	27	29,35
	♀	50	1	2,00	3	6,00	20	40,00	15	30,00	11	22,00
I.F.	♂	92	20	21,74	19	20,65	35	38,04	9	9,78	9	9,78
	♀	50	8	16,00	6	12,00	32	64,00	4	8,00	–	–
I.N.	♂	92	2	2,17	10	10,87	49	53,26	19	20,65	12	13,04
	♀	50	1	2,00	2	4,00	26	52,00	9	18,00	12	24,00

Les valeurs des indices individuels (les phénotypes) des enfants déficients s'inscrivent prédominant dans l'intervalle «M ± σ» chez les deux sexes, mais avec

de différences. Ainsi, les plus grands poids se trouvent pour les indices céphaliques, vertico-transversal, fronto-pariétal, fronto-zygomatique, nasal et pour l'indice facial chez les filles (pour les indices mentionnés le poids dépasse 50%).

La courbe de variation se dirige vers les catégories petites pour les trois indices céphaliques et l'indice facial, où, en totalisant les poids pour « $< M - \sigma$ » et « $< M - 2\sigma$ », par l'indice vertico-longitudinal et l'indice facial, les garçons dépassent très peu l'intervalle « $M \pm \sigma$ ».

Pour les indices fronto-pariétal, fronto-zygomatique, gonio-zygomatique et nasal, la courbe de variation se dirige vers les catégories grandes (les filles dépassent les garçons par les poids enregistrés dans les intervalles « $> M + \sigma$ » et « $> M + 2\sigma$ ».

La distribution des phénotypes conformatifs céphalo-faciaux chez les enfants déficients par rapport aux enfants normaux illustre un développement assez normal mais avec des aspects intéressants au niveau de la tête et de la face par les hauteurs et les largeurs.

III. LE DÉVELOPPEMENT CÉPHALO-FACIAL DES ENFANTS AVEC DÉFICIENCES DE LA VUE PAR RAPPORT AUX ENFANTS SOURDS-MUETS (Figure 1)

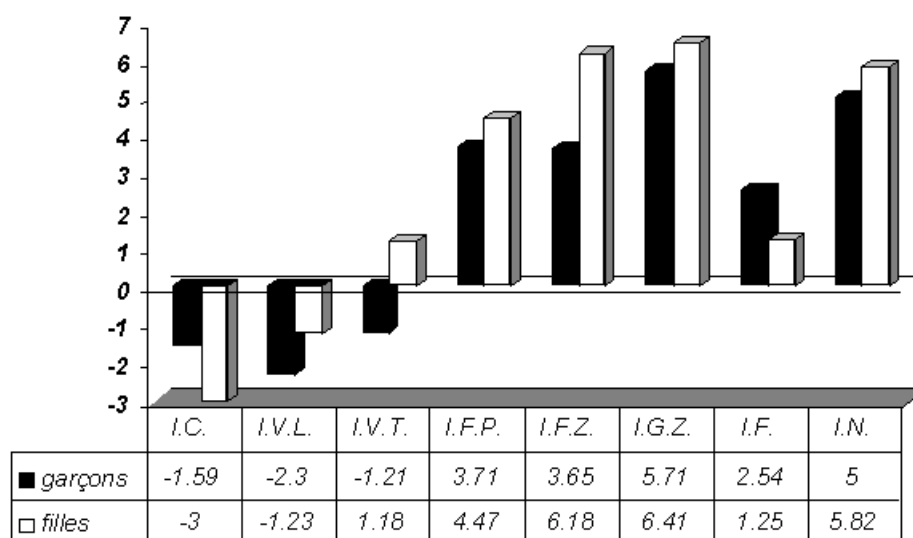


Fig. 1. – Valeurs de « t » concernant les indices céphalo-faciaux chez les enfants déficients de la vue par rapport aux enfants sourds-muets.

3.1. LES GARÇONS

Par rapport aux garçons avec déficience de l'ouïe, les garçons déficients de la vue ont les valeurs moyennes de « z » pour les trois indices céphaliques plus basses

et l'indice vertico-longitudinal ($t - v/g - op$) est placé à une différence statistiquement significative.

Pour les autres indices ($ft - ft/eu - eu$, $ft - ft/zy - zy$, $go - go/zy - zy$, $n - gn/zy - zy$ et $al - al/n - sn$) les garçons avec déficience de la vue ont des valeurs plus augmentées statistiquement significatives pour les largeurs du front, de la mandibule, du nez et pour la hauteur faciale (Luca *et al.*, 2004: 13–17).

3.2. LES FILLES

Les filles déficientes de la vue, par rapport aux filles déficientes de l'ouïe ont plus bas seulement l'indice céphalique (statistiquement significatif) et aussi l'indice vertico-longitudinal ($eu - eu/g - op$ et $t - v/g - op$). L'indice vertico-transversal ($t - v/eu - eu$) et l'indice facial ($n - gn/zy - zy$) sont, par la distance réduite «z», positives mais insignifiantes statistiquement. Les largeurs du front par rapport aux largeurs de la tête et de la face et aussi les largeurs relatives de la mandibule et du nez sont plus augmentées statistiquement significatives (Luca *et al.*, 2004: 13–17).

CONCLUSIONS

Nous sommes maintenant au moment de finaliser l'analyse du développement des enfants avec déficiences de la vue par rapport aux enfants normaux et aux enfants avec déficience de l'ouïe.

1. En ce qui concerne le développement conformatif céphalo-facial des enfants déficients de la vue par rapport aux enfants normaux les résultats indiquent un développement plus faible pour les trois indices céphaliques et l'indice facial. Chez les enfants déficients la courbe de variation est dirigée pour ceux-ci vers les catégories petites, et les garçons ont la hauteur de la tête par rapport au diamètre longitudinal céphalique plus basse statistiquement significative. Mais les largeurs relatives du front, de la mandibule et du nez dépassent les valeurs des enfants normaux. Chez les filles la largeur relative du front et du nez sont statistiquement significatives. En conséquence, les enfants déficients ont une largeur relative et une hauteur de la tête, de la face et du nez plus basses par rapport aux enfants normaux et les largeurs relatives du front et de la mandibule un peu augmentées.
2. Par rapport aux enfants avec déficience de l'ouïe, les enfants avec déficience de la vue ont par les proportions céphalo-faciales une tête plus étroite (chez les filles statistiquement significative), plus basse (chez les garçons statistiquement significative) et les largeurs faciales plus grandes (en général, statistiquement significative).

On peut supposer que ces différences conformatives céphalo-faciaux sont une conséquence, parmi des autres, des deux types de déficiences, respectivement de la vue et de l'ouïe, qui déterminent un développement un peu différent. Nous avons cherché presque tous les enfants de deux écoles. C'est intéressant à remarquer une proportion différente entre les deux sexes chez les deux lots: chez les déficients de l'ouïe prédominent les filles (106:59) tandis que chez les déficients de la vue prédominent les garçons (102:50). C'est possible d'exister aussi une sélection sexuelle pour ces déficiences.

3. Soulignons encore une fois que les conditions de la vie et d'enseignement sont assurées favorablement aux enfants déficients chez les deux écoles spéciales mais il y a certains facteurs qui influencent probablement le développement un peu plus déficitaire de ces enfants (facteurs familiaux, sociaux, médicaux, le degré de la déficience etc.).

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THE EFFECT OF DIET, LIFESTYLE AND ENVIRONMENT IN TWO GROUPS OF EUROPEAN BIOLOGICAL SCIENCE STUDENTS (UK-SPAIN)

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Previous studies on diet and lifestyle have revealed a set of concerning health problems across European student populations. This study uses combined methods of physical anthropology and personal questionnaires to compare patterns of diet and lifestyle, along with anthropometric indices in two student samples (N=200 each, 50% males, 50% females) at Manchester University, England, and at Universidad Autónoma de Madrid (U.A.M), Spain. We analyzed data on social and economic background, BMI, gender, lifestyle, food and dietary intake patterns, in order to assess differences between populations, test for nutrition-related health issues, and to propose corrective changes. The results reveal cultural differences regarding nutrition between the two countries, reflected in consumption patterns and food habits, but also certain similarities. The consumption of dietary supplements was far higher in Manchester than in U.A.M students. We found that all students were getting higher than recommended energy levels from fats and from protein and lower from carbohydrates. The least fat intake levels were detected in the female Spanish group and caloric values were close but below RDA recommendations. The study highlights a need for a strategy that should be gender-specific, as well as for the necessity of a multi-level methodology when tackling nutritional issues. Despite a B.M.I. within the normal ranges, the study underscores the necessity for further promotion of nutritional information. A main concern for health authorities should be that, despite high profile campaigning in a well-educated population, damaging nutritional patterns appear to persist in student youth.

Key words: foods habits, nutrition, university students, gender differences, Manchester, Madrid, BMI.

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INTRODUCTION

Physical Anthropology takes into consideration in increasing way the role of diet evolution and its variation among populations, social and cultural groups, and age. This last item is important because inside one population, specific variation can be revealed if diet analysis is conducted on many different cross sections of the community, as different sections have different dietary requirements, as well as different lifestyle practices. Adolescent as well as young adults have been shown to develop health habits placing them at risk of chronic disease in the next future of adult life (Kirklighter *et al.*, 1999, Prado 2003). Students are a particularly interesting group of research to see where policy needs to be targeted. Students as a social group have been subjected to a great deal of research conducted on their lifestyles and eating habits. Nutrition and lifestyle are very dynamic and constantly changing as lifestyles adapt to the rapidly changing world around them; moreover, different cultures present different nutritional and lifestyle habits. At a national level the Spanish diet is often viewed as a healthy “Mediterranean” one which is linked to a lower level of mortality from diet related diseases. The evolution of the Spanish diet has been very rapid in the past few decades. It underwent a dramatic increase in fat intake between the 60s and 80s due to the changing political climate. Consumption of animal products has become very high and the past few decades have seen rapid urbanization and also a higher proportion of females in the active workforce, leading to a greater consumption of processed foods (Aranceta, 2001). These findings concur with those of Moreno *et al.* (2002) who found that the diet has shifted toward a very high fat intake as well as high fruit and dairy intake and moderate vegetable intake.

According with the British nutrition foundation conference (2004) the fat intake points to one of the main differences between a British and a Mediterranean diet, with the traditional Mediterranean diet being high in unsaturated fats. Also highlighted, as a concern, were the low levels of micronutrients in young adults. Is this the truth? Can we speak now about a globalization of food consumption in young people? Will perspectives of health in adult life be the same?

The aims of the present paper are to study, on a background of growing concern, the cross European health problems relating to diet and lifestyle, with special attention to the student group. The aims of this investigation were to use the multidisciplinary focus of physical anthropology to determine if diet, lifestyle, and anthropometric factors differ between Biological Science students at the La Universidad Autonoma de Madrid (Madrid, Spain) and Biological Science students at the University of Manchester (Manchester, England), and to propose changes to diet and lifestyle habits where problems have been revealed.

POPULATION AND METHODS

The study was conducted in two European Universities: Manchester University and Universidad Autónoma de Madrid (U.A.M.), among students from both institutions. Data have been collected through personal questionnaires at a time when neither student group had exams (October and November) in 2007. The sample consisted of 200 biological science students at each university (50% males and 50% females). Both English and Spanish versions of the questionnaire were used. The questionnaires consisted of 5 sections covering dietary, socio economic and lifestyle factors:

Section 1: Social and economic background.

Section 2: Anthropometric data (IBP Methods – Weiner and Lourie, 1981).

Section 3: Lifestyle details. Subjects were asked: A) – If they smoked and if their parents smoked. For subjects who smoked they were asked how many cigarettes they smoke a day. B) – If they drank and if their parents drank. This was then converted into a number of units. Subjects were asked if they were on a diet, if so for how long and for what reason. C) – Which of the following defined their level exercise: 1. Light, 2. Moderate, 3. Hard. D) – If they took: 1. Vitamins; 2. Proteins; 3. Other dietary supplements.

Section 4: Food pattern and dietary intake. Subjects were asked where they ate their meals, the time of meals, as well as whether this pattern changed between weekdays or weekends in accordance with the technique outlined by IBP (Weiner and Lourie, 1981). The options of where they ate their meals were as follows: 1. Family home; 2. Shared accommodation; 3. University; 4. Restaurant. Subjects were asked what they ate and drank for two weekdays and a day of the weekend. Subjects were asked to be as specific as possible on portions and what the meals contained, so as to have the clearest possible picture of food intake. Data collected on food consumption were compared to the recommended levels for each individual using GEA software (2002). First, subjects' age, sex, height weight, and level of activity were entered into the program. GEA (2002) contains 3 options for level of activity. The three levels of activity for the software are: light, moderate and hard. A conversion table was created to quantify the answers about exercise to one of the categories in the program.

G.E.A CATEGORIES	ANSWERS TO QUESTIONS ON EXERCISE
Light	No exercise
Moderate	Light exercise
Hard	Moderate and hard exercise

Once these parameters were entered into the program the software produced a recommended daily amount of micronutrients for each individual and an overall recommended daily amount of energy as well as a basal energy level. These results

were copied into a table. The food that the person ate in a day was then entered into the program with the quantities specified by the subject. Where the quantities were not known or specified the standard was used from the program. For complex dishes that show a large amount of variation in how they are prepared such as *paella*, the recipe and quantities that were used were from the program. Since the program was of Spanish designed, typical English dishes did not have available standards, so they were obtained from www.deliaonline.com. The software then calculated the nutritional value of all the food consumed in that day. The values of the overall amount of energy from the day's food, macronutrients and micronutrients that had a recommended daily amount (R.D.A.) were all noted. The level of sodium and the calorific profile for each day were noted. This procedure was repeated for the following two days and the results were recorded in the same way. Sodium did not have an R.D.A. but its levels were compared to GEA (2002), which stated that levels of sodium should not exceed 2500mg a day. Similar to sodium, fibres did not have an R.D.A., and the value was once again compared to levels that GEA (2002) stated, specifically that fibres should be greater than 30g. The macronutrients consumed were compared to R.D.A. through the calorific profile option in the software. This stated that between 10–15% of energy should come from protein, 30–35% of energy should come from fat, and more than 50% from hydrocarbons. The frequency of vegetable, fruit and red meat consumption was also counted. The fruit and vegetable intake was counted in terms of portions indicated by www.5aday.nhs.co.uk.

Section 5: Food habits. Subjects were asked: if they ate breakfast (1. Never, 2. Always, 3. During the week, and 4. On weekends); and if they consumed fast food (1. More than once a week, 2. Once a week, 3. Twice a month, 4. Occasionally, and 5. Never).

This paper focuses on the nutritional aspects of the population (i.e. sections 3, 4 and 5).

RESULTS

Diet Analysis. Table 1 considers energy requirements at a metabolic level and shows that both populations consumed above their basal energy requirement. When compared to basal levels, none of the differences between the populations or genders were significant. Although both populations consume well below their recommended metabolic requirements, Manchester students consume significantly lower amounts when compared to their U.A.M counterparts ($t=2.411$, $p<0.017$). Both universities showed a sexual dimorphism, with the female students eating closer to their recommended metabolic requirement ($t=3.285$, $p<0.001$ at Manchester and $t=6.025$, $p<0.000$ at U.A.M). There was no significant difference between the two male groups ($t=0.440$, ns). However, U.A.M females consumed a number of

calories that was significantly closer to the recommended levels than their Manchester counterparts ($t=4.065$, $p<0.000$).

Table 1

Actual calorie intake in kilocalories. Actual calorie intake compared to Basal metabolic requirement (Actual-Basal). Actual calorie intake compared to Recommended energy requirement (Actual-Recommended)

	University of Manchester				U.A.M			
	Actual	sd	Basal	Rec.	Actual	sd	Basal	Rec.
All	1735.64	245	128.1	-1005.89	1750.35	211	191.84	-815.62
Male	2024.31	286	203.53	-1177.81	1937.54	239	210.76	-1115.34
Female	1446.97	209	52.68	-833.96	1563.17	199	172.92	-515.9

Table 2 considers the distribution of energy amongst the macro components of the diet. Results show that diet in both student groups was over the recommended level of protein. The highest percent of protein consumption was U.A.M females with 19.75% and the lowest Manchester females with 16.04%. The difference in the overall populations points to U.A.M being 3.34% higher. Both populations ate only slightly over the recommended level of fats, with U.A.M females being the highest consumers of fat with 37.1%, closely followed by University of Manchester males 37.07%, the lowest fat consumers being U.A.M males with 34.33%. Both diets contained lower than recommended levels of carbohydrates, with University of Manchester at 46.9% and U.A.M at 44.8%. The lowest carbohydrate consuming group where U.A.M females with 43.1%, and the highest in University of Manchester females with 47.9%.

Table 2

Percentage of Macro components of intake (Carbohydrates, Protein and Fats in Manchester and Autonoma student males and females)

	University of Manchester			U.A.M		
	H.C	Protein	Fat	H.C.	Protein	Fat
Male	45.83 %	17.10 %	37.07 %	46.66 %	19.01 %	34.33 %
Female	47.90 %	16.04 %	36.06 %	43.10 %	19.75 %	31.70 %

Table 3 shows consumption of the fibre macro component, with both populations consuming similar amounts, and, in all groups, at levels below the G.E.A. recommended of 30g.

Table 4 shows sodium consumption considered separately from other minerals, as it did not have a recommended daily amount, except for that it should not exceed 2500 mg per day, a figure that was not reached in any group. At a population level there

was no significant difference ($t = -1.934$, ns), but Manchester males consumed significantly higher levels of sodium than their U.A.M counterparts ($t = -2.287$, $p < 0.024$). No difference was seen in females ($t = -0.672$, ns). Both populations show a sexual dimorphism, with the males consuming significantly higher levels of sodium than their female counterparts ($t = -5.04$, $p < 0.000$ and $t = -2.487$, $p < 0.015$, respectively).

Table 3

Mean of Fibre intake in both populations by sex (grams)

	University of Manchester	U.A.M
All	13.13 $\pm$ 2.0	13.17 $\pm$ 1.8
Male	14.12 $\pm$ 2.8	14.24 $\pm$ 2.4
Female	12.2 $\pm$ 1.6	12.06 $\pm$ 1.3

Table 4

Mean of Sodium intake in both populations by sex (mgr)

	University of Manchester	U.A.M
All	2058.28 $\pm$ 169	1791.26 $\pm$ 120
Male	2461.41 $\pm$ 189	2045.27 $\pm$ 144
Female	1655.16 $\pm$ 134	1496.70 $\pm$ 109

The deficits of minerals and vitamins can be, in developed countries, a cause of malnutrition. The number of references about this fact is less common. The present study incorporates data on levels of these components in the intake of students in Manchester and Madrid.

Table 5

Mineral intake when compared to R.D.A.
(Actual intake-Recommended intake)

	University of Manchester			U.A.M		
	All	Male	Female	All	Male	Female
Calcium (mg)	-445,69	-284.49	-606.89	-464,36	-320.36	-608.35
Iron (mg)	-1,93	2.38	-6.25*	-1,00	2.36	-4.36
Iodine (μ g)	51,32	29.14	73.5	149,75	143.31	156.19
Zinc (mg)	-4,23	-3.66	-4.8	-2,23	-0.96	-3.5
Magnesium (mg)	-139,09	-105.8	-172.39	-143,62	-148.91	-138.32
Potassium (mg)	-1238,34	-1012.05	-1464.62	-881,05	-758.92	-1003.19
Phosphorus (mg)	171,42	267.16	75.67	209,16	283.54	134.78
Selenium (μ g)	-24,76	-23.06	-26.45	-18,51	-20.41	-16.61

Table 5 shows that, overall, there are many similarities between mineral intakes of the two populations, with both showing deficits in the same areas and surpluses for the same elements. The largest deficit in potassium intake in Manchester shows a negative impact in Na/K relation, in which the level of Na should be less. The largest surplus in phosphorous is common in both groups, with U.A.M students having a larger surplus. Similarities between populations were also reflected in the way the deficits affected them. Thus, calcium intake differs between the sexes, the large deficits in calcium, as well as iron intake being registered in women. This deficit shows in both populations, and is especially important and remarkable in women, for whom calcium is necessary to optimise bone mineral density, balancing against their big loss of bone minerals in midlife after menopause. The U.A.M student diet is very iodine rich compared to the Manchester diet. The diet with the largest number of deficits in minerals is that of female Manchester students.

According to the vitamin component, most of the components are in surplus. However, both diets show a large deficit in Folic acid. The U.A.M diet has the fewest deficits but, of the deficit it does have, it is the largest in all population groups. Manchester males have the greatest number of deficits and their surpluses are the lowest. Both diets have vitamin A deficits with the largest deficit being in Manchester males, with U.A.M males also showing a large deficit. The Manchester student diet shows a surplus in vitamin D, whereas the U.A.M one is in deficit. The only diet with a surplus of vitamin D is the Manchester female diet. These differences can be compensated in Spanish youths by solar radiation and big efficiency in the process pro-vitamin to vitamin change. Both diets, Madrid and Manchester, have a deficit of vitamin E, with the males from both universities having a higher deficit than their female counterparts (Table 6).

Table 6

Vitamin intake when compared to R.D.A
(Actual intake-Recommended intake)

	University of Manchester			U.A.M		
	All	Male	Female	All	Male	Female
Vit B1 (mg)	0.03	-0.07	0.12	0.11	0.15	0.07
Vit B2 (mg)	-0.18	-0.26	-0.1	-0.05	-0.24	0.15
Eq Niacin (mg)	10.85	12.44	9.27	15.43	15.05	15.8
Vit B6 (mg)	0.31	0.2	0.42	0.42	0.28	0.57
Folic Acid (µg)	-152.24	-121.31	-183.16	-186.96	-182.03	-191.89
Vit B12 (µg)	2.09	2.11	2.08	2.56	2.44	2.67
Vit C (mg)	24.34	20.42	28.25	31.53	24.9	38.15
Vit A (µg)	-317.23	-380.88	-253.58	-292.96	-354.8	-231.11
Vit D (µg)	4.44	-0.94	9.82	-2.26	-2.73	-1.79
Vit E (mg)	-5.47	-6.15	-4.78	-5.34	-6.3	-4.38

Regarding A clear difference the eating habits and intake of different groups of food, table 7 shows that there is no significant difference in fruit consumption between the two student populations ($t=0.923$, ns), and no significant difference either between Manchester males and their U.A.M counterparts, or between females. Like fruit consumption, there is no significant difference between the consumption of vegetables between the two student groups ($t= -1.289$, ns). Equally there was no difference between the sexes and there respective counterparts. There is however a significant difference between the two populations consumption of red meat, with U.A.M eating significantly more then their Manchester counterparts ($t=3.17$, $p<0.002$). Regarding sexes, there is no significant difference between the two groups of males, but a significant difference was observed between the females, with U.A.M females eating more then their Manchester counterparts ($t= -2.832$, $p<0.006$).

Table 7

Consumption of portions of fruit, vegetables and meat in a three-day period

	University of Manchester						U.A.M					
	Fruit	sd	Vegetables	sd	Red meat	sd	Fruit	sd	Vegetables	sd	Red meat	sd
All	2.84	1.3	2.81	0.9	2.67	1.6	3.27	1.9	2.47	1.8	3.51	1.3
Male	2.88	1.5	2.56	1.3	3.2	1.8	2.44	2.1	2.24	1.8	3.8	0.9
Female	2.8	1.2	3.06	0.7	2.06	1.5	4.1	1.7	2.7	1.7	3.16	1.5

The low levels of fruit and vegetable consumption were reflected in the low percentage of diet that complied with the “5 A DAY” recommendation. Only 3% of U.A.M and 5% of Manchester students reported eating an average of at least 5 portions of fruit and vegetables a day. The overall averages were 1.99 at U.A.M and 1.88 at Manchester.

The number of students who eat lunch at university is very similar. However, location for dinner and breakfast shows a large difference, with most U.A.M students eating at family homes while Manchester university students eat at their own homes or at halls of residence. Eating times showed little difference for breakfast, with an average of 08.38 a.m. at Manchester and 08.15 a.m. at U.A.M. However the time for both lunch and dinner are much later at U.A.M (14.17 p.m. and 21.48 p.m., respectively) compared with U.K. (12.58 p.m. and 18.26 p.m., respectively).

Differences were also detected regarding consumption of dietary supplements between the two populations. Specifically, only 9% of U.A.M students reported taking supplements compared to 30% at Manchester.

Finally, table 8 shows that males at both Manchester and U.A.M were far higher consumers of fast food than their female counterparts, with a very significant association between gender and consumption of fast food ($\chi^2=13.71>3.84$ at U.A.M and $\chi^2=24.4>3.84$ at Manchester).

Table 8

Fast food consumption values in %

	University of Manchester			U.A.M		
	All	Male	Female	All	Male	Female
Once a week	27	42	12	15	22	8
Once a week	20	22	18	15	20	10
Twice a month	11	6	16	8	8	8
Occasionally	30	20	40	55	46	64
Never	12	10	14	7	4	10

DISCUSSION AND CONCLUSION

The link between higher socio-economic status and nutrition is well documented (Shahar *et al.*, 2005). However, its importance in the case of students at the University of Manchester is very much diminished because the majority of Manchester students do not live at home and, although coming from a slightly higher socioeconomic group, their nutritional intake and dietary habits are different from what would be expected. This difference highlights a cultural difference between the two countries, i.e. in Spain over 80% of 26 year olds live with their parents (www.ine.es) whereas in England most people use university as the stepping-stone to leaving home. This is reflected in the fact that most U.A.M students were from Madrid while Manchester students were from outside the city. The cultural difference demonstrates the difficulty of a common policy for the same age group. When considering the background of the students, both groups are of similar age and of a similar economic status, with most of their parents holding administrative or higher-level jobs. However, not only was the living environment of two groups of students different, but they were also differed regarding their lifestyle. Thus, we recorded differences between the two universities for tobacco and alcohol use and for physical exercise. A decline in smoking could be explained by the hard-hitting campaigns across Europe launched in 2002 and focused on the effects of tobacco, coupled with price increases. These campaigns were shown to work at least in the short term by Portillo and Antonanzas (2002). However, the decline was not reflected in U.A.M students. Alcohol consumption, like smoking, has been shown to be more prevalent when the parents drink (Taylor *et al.*, 2004) and smoke (Engels *et al.*, 2004). The gender variation between levels of exercise and the difference between the levels at the two universities supports Steptoe *et al.* (1997) in which a cross European study revealed a high level of variability amongst student groups. Our results show that, while in Manchester females exercised more, in U.A.M the reverse was observed. The frequency of biological science students at U.A.M who exercised was far higher than the university overall,

as just 13.07% have a sports card (required to use the sporting facilities). At first glance, lifestyle differences by themselves could have explained the significant B.M.I difference between Manchester and U.A.M females. Thus, U.A.M females smoke more, smoking being an appetite suppressant (Jo *et al.*, 2002) used as a weight control strategy especially among females under 25 years old (Varner 1996). In contrast, Manchester female students show much higher levels of drinking, with alcoholic beverages, especially beer, being high in calories. Logically, it would be expected that Manchester females would have a higher B.M.I. However, our study highlights the benefit of a multidisciplinary approach, as the expected results are no longer reflected from a calorie-count perspective, with U.A.M females consuming a higher number with respect to their basal and recommended calorie levels.

When both socio-cultural and lifestyle differences of the two populations are factored-in, the expected and observed nutritional level differences are concordant. However, in general terms it can be said that both diets are poor. When calorie intake is considered relative to the basal level, all students eat above it, with Manchester females consuming only just above this level. Relative to a recommended calories level, all females eat well below it, with U.A.M coming closest to the required amount. However, the low values have been shown in many studies to reflect an underestimation of food intake (Ortega *et al.*, 1997). Similarly, women of all B.M.I are likely to misreport how much they eat due to a desire to either lose or gain weight (Lara *et al.*, 2004); slightly more Manchester than U.A.M females expressed a desire to lose weight. In addition, eating at the recommended level everyday is not a requirement since recommended levels are based on an average. However, a previous study of a group of Spanish university students has found a low calorie intake and highlighted it as a concern (Gonzales *et al.*, 1999). We found that all students were getting higher than recommended energy levels from fats and from protein and lower from carbohydrates. The high fat intake levels in the female Spanish diet are supported by a previous study by Moreno *et al.*, 2002, where a shift to high fat intake was noted in the Spanish diet. However, this was not noted in the males of present study, pointing to a gender difference. Despite having the highest fat intake, the U.A.M females had the lowest body mass index, pointing to a difference in the type of fats being consumed by the respective female populations and a cultural difference between the two countries. In Mediterranean countries much of the fat consumed is unsaturated, typically olive oil (Aranceta, 2001). Fibre levels are also too low, based on the low levels of fruit and vegetables (Moreno *et al.*, 2002).

At a micro-component level the results demonstrate that there are similar areas of deficit in the two populations, but in different degrees, and also a sexual dimorphism. We highlight the lack of calcium and iron in both female populations, a result supporting Kirklighter *et al.* (1999) who found the same main deficits in a female population of university students in the US, pointing to a common problem in

young females' diet across developed countries. The iron deficiency in females is a concern due to iron's physiological role, and its loss through the menstrual cycle.

Regarding vitamins we found the most numerous cases of consumption over the recommended levels, relative to other components. However, vitamin A and E were in deficit, a result supporting McCullough *et al.* (2002) findings in a study of university students, as well as low levels of folic acid. The high levels of sodium in the diet, especially in Manchester males, could be due to fast food consumption (rich in salt), most prevalent in Manchester males; a similar explanation may reflect the high levels of sodium in U.A.M. males.

Differences are also observed in the nutritional habits of the two populations. The consumption of dietary supplements was far higher in Manchester than in U.A.M. students. This could be simply due to advertising strategies or to difference in opinion on supplements. However, supplements do not have the same effect (Barrett, 1997) and that benefits of higher levels of vitamin C, for example, were only seen in people obtaining it from foodstuffs such as fruit (Angel, 2004). Dieting negatively affects the ability to perform mental tasks (Coughlan, 1995). Missing breakfast is linked to poorer attendance (Chen and Liao, 2002) as well as weaker performance and concentration. Attendance, performance and concentration are all hugely important in the student social group. Therefore, the 12% of Manchester students on a diet, although not a high figure, at this particular stage of life may not be the best idea. Moreover, a higher number of Manchester students reported missing breakfast.

Our study highlights cultural differences between the two countries regarding nutrition. Despite a B.M.I. within the normal ranges, the study underscores the necessity for further promotion of nutritional information. A main concern for health authorities should be that, despite high profile campaigning in a well-educated, well-off population, the "five-a-day" message does not seem to be getting through. Both universities can have an important role to play in the improvement of the student diet, as over 60% of them eat in the on-campus canteens. The study also highlights a need for a strategy that should be gender-specific, as well as for the necessity of a multi focus approach when tackling nutritional issues.

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ON THE PATHOLOGY OF DERMATOGLYPHICS IN ENURESIS

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We present the results of a digital dermatoglyphic study on a sample of 89 enuresis-affected patients (48 boys and 41 girls), aged 6 to 18, all of Moldavian origin, from whom 178 fingerprints had been collected.

The overall digital dermatoglyphic pattern of these patients reveals some *important malformative sketches (anomalies or distortions)*, the percent ratio of which is sensibly different from the values recorded in the reference sample. This situation indicates that the causal factors involved in the development of enuresis occurred in the first 3–5 months of intra-uterine life, period corresponding to the development of the epidermal papillary ridges – seen here as having suffered significant deviations from normality, – even though the malady manifests in one of the post-natal stages (i.e. after the age of 5), and under the influence of several complex factors.

Affecting both the boys and (more so) the girls, and manifested on both hands (but especially on the left one), the digital dermatoglyphic distortions might be employed as “*markers*” for a precocious diagnosis of risk of enuresis, until the development of more extended clinical tests, and the recorded frequency values *as reference data in the screening for the malady at populational level*.

Key words: dermatoglyphics, pathology, enuresis, distortions (anomalies).

INTRODUCTION

The present paper is devoted to the digital dermatoglyphics of patients suffering from enuresis, a first investigation of this type in Romania. Labeled as a malady manifested only at ages older than 5 years – when the mictional control is already established by the maturation of the nervous system, known as mastering the urinary bladder (Meilă *et al.*, 1988: 580–600, Gearhart *et al.*, 2001: 497–510), *the enuresis* is defined as an either uncontrolled or involuntary mictional action (urinary incontinence), in a socially unacceptable moment or place (Zamfir *et al.*, 1996: 280–283, Gearhart *et al.*, 2001: 499–507). It may appear either exclusively during the day (diurnal enuresis) or exclusively during the night (nocturnal

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enuresis), although in some cases both forms may be manifested. *Night enuresis* may be defined as *primary*, when the child had been never dry for at least 3 months during the night, and *secondary*, respectively, when urinary incontinence re-appears after a period longer than 6 months, being triggered in most cases by emotional stress, bacterial infections of the urinary tractus, possible neurological affections, malformations or tumors of the urinary bladder, which are usually healed by pediatric surgery (Aprodu *et al.*, 2005: 767–769; Meilă *et al.*, 1988: 340–404). It is worth mentioning that *nocturnal enuresis* should not be confounded with “*nocturia*” (urination during the night). From this perspective some authors (Gearhart *et al.*, 2001: 497–503; Hjalmaš, 2001: 511–530) report that, out of the children with ages between 7 and 15 years, 3.6% declare one night urine discharge per week and 4.1% of them – each night, a situation in which the last ones may become, in time, affected by night enuresis. At present, it is generally acknowledged that nocturnal enuresis may subside at a 15% annual ratio, such that, out of the 15–25% enuretic children at the age of 5 years, only 7% remains at 7 years, and at 12–15 years only 2–3%, after 15 years – just 1–2%, and at adult ages – approximately 0.5% (Zamfir *et al.*, 1996: 280–283).

Regarding the *etiology of enuresis*, it is now unanimously agreed that the causal factors responsible for such a malady are numerous and quite complex (Haque *et al.*, 2008: 809–811, Aprodu *et al.*, 2001: 187–189). Among them, a special place is held by the *genetic component*. Studies of enuretic families have shown that descendents’ risk reaches 77% when both parents are affected, 44% when only one parent is enuretic, and only 15% when no family antecedents had been manifested. *The heredity of enuresis* is multifactorial-autosomally dominant, with responsible genes on chromosomes 8, 11, 12, 13, 22; however, molecular genetics experiments have shown that the number of involved chromosomes exceeds 10 (Gearhart *et al.*, 2001: 497; Aprodu *et al.*, 2001: 187–200; www.urologychannel.com.2008).

The hereditary transmission of enuresis still remains an open question. Apart from the genetic factors contributing to the malady set-off and, implicitly, to disorders in the nervous system and in the reno-urinary apparatus, a multitude of other elements are involved. They include *psychological and affective factors* (over-exertion, parents separation, birth of a younger brother, moving from one school to another, school problems, etc.), *factors of psycho-somatic development* (retarded growth and development, psycho-motor instability, mental deficiencies, behavioral disorders, etc.), the *low matutinal vasopressin level*, and *retarded maturation of the urinary bladder*, which remains at a reduced, infantile-type capacity, due to scarce secretion of antidiuretic hormones (ADH) (Hjalmaš, 2001: 511–530; Zamfir, 1996: 280–283).

The diagnosis of enuresis and the correct tracing of the adjoining causes (especially in the case of diurnal and of secondary, night enuresis) require – besides urine analysis – other minute investigations (urography, cystoscopy, etc.). Considering

the lifetime, subject-specific immutability of dermatoglyphics, an early diagnosis of enuresis could rely in the next future on the results of a “*dermatoglyphic test*”, performed at any age. An extended utilization of the test can be envisioned for the diagnosis of several other genetic and non-genetic maladies (Cummins, 1961: 256; Schauman, 1976: 221). Having all these in view, we present a pioneering study (in Romania) devoted to the pathology of dermatoglyphics in a group of children suffering from enuresis, with the objective of characterizing possible distortions or anomalies in the digital dermatoglyphics patterns that are specific to the patients under analysis, correlated with the malady, and to evaluate their subsequent employment as “markers” for an early risk-assessment of enuresis.

MATERIALS AND METHOD

A total number of 178 dermatoglyphic files were recorded at the Center of Mental Health of the “Socola” University Hospital of Iași and at the University Hospital of Pediatrics of Iași, from a group of 89 enuresis-affected children (48 boys and 41 girls, aged 6 to 18) of Moldavian origin, using fingerprint dermatoglyphs. Out of all affected patients, 6 (boys only) suffer from diurnal enuresis, 39 (19 boys, 29 girls) – from night enuresis, and 43 (23 boys, 20 girls) from both forms of the malady. Most of them were diagnosed with various degrees of mental deficiency, from slight to severe, with QI values ranging 34 to 48 in boys and 37 to 73 in girls, respectively, with retarded physical and speech development (polymorphic dislaly being quite frequent), behavioral disorders, psycho-motor instability and anxiety, oligophreny of the Ist and IInd order (7 cases registered in boys and 6 in girls), so that many children had been considered, by the Commission of Experts for invalidity, as having a IIIrd or IInd-type handicap. We started from the premise that group-level dermatoglyphic distortions or anomalies reflect frequency differences of dermatoglyphic characteristics from the values typically recorded in the originating normal, and apparently healthy population. We also assumed that such variation may reflect sex differences, bilateral and finger distribution differences. Thus, we employed a comparative dermatoglyphic analysis of the results from this sample and the population of Moldova (Țarcă, 1995: 122–271), as well as with data we and other authors previously reported for patients affected by epilepsy, autism and infantile encephalopathy (Țarcă, 2002:28–34; Țarcă, 2003: 187–199; Țarcă, 2004: 109–119), maladies in which enuresis occurs only as a secondary affection.

For all digital anomalies or distortions under study, we considered the sexual and bilateral differences, as well as the tendency of their distribution on the 5 cumulated fingers, all bearing a special significance for the correct evaluation, from a dermatoglyphic perspective, of the extent to which the batch had been affected.

The working methods employed are those currently applied in studies of populational pathological dermatoglyphy (Cummins, 1961: 361; Schauman *et al.*, 1976: 184–200; Țurui *et al.*, 1979: 211–226).

RESULTS AND DISCUSSION

Analysis of the digital dermatoglyphic files revealed an *ample pathological load*, suggestively illustrated by the presence of some important distortions or anomalies bearing clinical consequences (group frequencies listed in Table 1). First, enuretic

Table 1

Comparative data on the frequency and distribution tendency of the digital distortions as a function of sex, laterality and on fingers

Digital anomalies	Afflictions and reference batch	%	Sexual differences	Bilateral differences	Distribution on fingers
A on total fingers	Enuresis	8.87	$B \geq G$	$L > R$	$II > III > I > V > IV$
	Autism	9.22	$B \geq G$	$L > R$	$II > III > I > V > IV$
	Epilepsy	13.03	$G \geq B$	$L \geq R$	$II = III > IV > I > V$
	IEP	9.25	$G > B$	$L \geq R$	$II > III > IV > I > V$
	Reference batch	3.50	$G > B$	$L > R$	$II > III > V > I > IV$
L on total fingers	Enuresis	52.69	$G > B$	$L > R$	$V > III > IV > I > II$
	Autism	59.13	$B > G$	$R \geq L$	$V > III > IV > I \geq II$
	Epilepsy	56.57	$B \geq G$	$L > R$	$V > III > IV > I > II$
	IEP	58.05	$G > B$	$L > R$	$v > III > I > IV > II$
	Reference batch	71.00	$G > B$	$L > R$	$V > III > II > I > IV$
W on total fingers	Enuresis	39.21	$B > G$	$R > L$	$I > IV > II > III > V$
	Autism	31.59	$G \geq B$	$R > L$	$IV > I > II > III > V$
	Epilepsy	30.49	$B \geq G$	$R > L$	$I > II > IV > III > V$
	IEP	32.70	$B > G$	$R > L$	$IV > I > II > III > V$
	Reference batch	28.00	$B > G$	$R > L$	$I > IV > II > III > V$
Racketoid loops	Enuresis	4.27	$B > G$	$L = R$	$V > IV > II > III > I$
	Autism	8.31	$G > B$	$R \geq L$	$IV > V > II > III > I$
	Epilepsy	6.66	$G = B$	$R \geq L$	$IV > V > I > II > III$
	IEP	7.50	$B > G$	$L \geq R$	$V > IV > II > III > I$
	Reference batch	–	–	–	–
Radiality of the digital structures (A+L+W)	Enuresis	10.67	$B \geq G$	$R > L$	$II > III > IV > I > V$
	Autism	10.72	$G > B$	$L > R$	$II > IV > III > I > V$
	Epilepsy	12.35	$B > G$	$R > L$	$II > III > IV > I > V$
	IEP	11.50	$G \geq B$	$R \geq L$	$II > IV > III > I > V$
	Reference batch	2.80	$B > G$	$R > L$	$II > III > IV > I > V$

Autism 2008 – Ana Țarcă (N = 200: 100B, 100G)

Epilepsy 2002 – Ana Țarcă (N=102: 51B, 51G)

IEP (infantile encephalopathies) 2004 – Ana Țarcă (N = 200: 100B, 100G)

Reference batch 1995 – Ana Țarcă (N = 200: 100B, 100G)

Enuresis 2009 – Ana Țarcă (N = 89: 48B, 41G)

children are characterized by *extremely high frequency* of whorls (W) when compared to the normal population, and to samples representative for other genetic and non-genetic afflictions (Țarcă, 1995: 122–271; Țarcă, 2002: 28–34; Țarcă, 2003: 187–199; Țarcă, 2004: 109–119; Schauman *et al.*, 1976: 180–221). Thus, whorls reach average ratios of 42.50% in boys and of 35.36% in girls, respectively, *versus* the only 28% average ratio characterizing the normal population from Moldova (Țarcă, 1995: 122–271). This suggests that the high frequency of whorls (sensibly different also from the values recorded in other major brain affections accompanied by enuretic symptoms) might be specific to enuresis proper. The data listed in Table 1 also indicate that sexual and bilateral differences, as well as W distribution on fingers, follow the same tendency and succession as in the normal sample.

A second distortion, manifested at digital level, refers to the *increased frequency of arches (A)*. Arches are typically the least frequent feature represented in any population (Cummins, 1961: 361; Țurui *et al.*, 1979: 211–226; Țarcă, 1995: 122–271). In the study sample arches reached up to 8.87% *versus* only 3.50% in the reference sample. Moreover, the values for the two sexes were practically equal (8.96% in boys and 8.78% in girls), instead of the double ratios in girls compared to boys, which is the normal situation.

Similarly with the situation characterizing the population from Moldova and with that of the maladies considered for comparative purposes, A occurs in enuresis more frequently on the left hand and mainly on fingers II and III.

An inversion bearing a special pathological significance for its carriers – present in both enuretics and autists (Table 1) – is represented by the *positioning of finger I in the classical distribution formula, on position 3 instead of 4*.

The high frequency of A and, especially of W in enuretics, has led to another important anomaly with deep medical implications. Specifically we refer to the *significant diminution of the occurrence of loops (L)*. This pattern, which is *the most frequent* one reaching 71% in the reference population, was found only at 52.6% in the enuretics. The data from Table 1 also show that the ratio recorded in enuretics takes one of its lowest values, relative to those characterizing patients affected by epilepsy, autism or IEP. Therefore, until more complete investigations will be performed, we propose that this decrease may be specific to enuresis.

The presence on fingers of racketoid loops, in a ratio of 4.27%, more frequent in enuretic boys (4.80%) than in girls (3.65%), with equal values on the two hands (4.27%), at the level of the whole study group, constitutes another malformative sketch of the digital picture. Such patterns – extremely rare even in other maladies (Schauman *et al.*, 1976: 221) and absent in the reference sample from Moldova – maintain the same succession of distribution on fingers as in epilepsy, autism and IEP-s with sequela, a succession indicating their prevalence on fingers V and IV, followed by II > III > I.

Enuretic patients show *an increased frequency for the radial orientation of the digital structures, taken as a whole (A+L+W), much over the normality threshold* (Table 1). This pattern is quite similar to that found in people with reversed position of the internal organs (Schauman *et al.*, 1976: 221; Țurair *et al.*, 1979: 211). The average frequency recorded for this anomaly in enuretics (i.e. 10.67%) is quite close to that registered in patients suffering from autism and IEP-s with sequela (10.78% and 11.50%, respectively), with practically equal values in the two sexes (10.83% in boys and 10.48% in girls). This feature is largely present on the right hand of the affected subjects – which is also the case for the reference batch of epileptics and – to some extent – for those with IEP-s with sequela. Regarding radially distribution on fingers we found that it maintains the same succession as in the reference sample and in epileptics. A notable aspect concerns the last two positions in the classical scheme of radially distribution of the digital structures, occupied by fingers I and V, a pattern shared with the normal population (Țarcă, 1995:122–271) and with the subjects afflicted by other genetic or teratological maladies (Schauman *et al.*, 1976: 221).

Last but not least, we refer to digital anomalies regarding *monomorphism*, a feature with extremely important clinical implications (Schauman *et al.*, 1976: 221; Țarcă, 2002: 28–34; Țarcă, 2003: 187–199; Țarcă, 2004: 109–119; Țurair *et al.*, 1979: 211–226). Specifically, the *bilateral monomorphism* (i.e. the same type of pattern on each of the 5 fingers of the left and right hand, respectively), and especially the *individual monomorphism* (i.e. the same type of pattern on each of the 10 fingers of a person) have *much-higher prevalence* (percent values listed in Table 2). According to the table, in the case of left-hand, right-hand, or individual monomorphism, the values recorded in the enuretic sample are sensibly different from those in the reference sample. Out of the two sexes, however, the three forms of monomorphism take higher percent values in boys than in girls, which reveal, once again, the complex clinical picture of the malady in the former ones.

Table 2

Comparative data on the frequency of hand and individual monomorphism, differentiated on sexes, and on the whole

Affections	Boys			Girls			Total		
	L	R	I	L	R	I	L	R	I
Enuresis	27.08	22.91	12.50	19.51	14.63	7.32	23.59	19.10	10.11
Autism	23.67	25.00	8.65	23.30	22.33	11.65	23.50	23.67	10.14
Epilepsy	25.49	11.76	3.92	19.60	19.60	7.87	22.55	15.68	5.88
IEP	32.00	27.00	14.00	23.00	23.00	10.00	27.50	25.00	12.00
Reference batch	15.00	9.00	3.00	14.00	8.00	2.50	14.50	8.50	2.75

The frequency of left-hand monomorphism at group level is quite close to that recorded in autism and epilepsy, while that of right-hand monomorphism – to the values characteristic to autistic and IEP patients. Consequently, a general idea may be asserted that the dermatoglyphic behavior in enuresis is quite similar to that observed in the other three major brain afflictions considered for comparative purposes. Compared to the reference batch from Moldova, all digital distortions in the enuretic sample occurred at sensibly higher levels, while some differences in sexual and bilateral distribution of patterns occurred at considerable diminished frequencies. These findings suggest that the causal factors, either of genetic or teratological nature, involved in the development of the malady, had acted in the first 3–5 months of intra-uterine life, period when the genesis of epidermal papillary ridges had also been finalized, even though the pathological set-off occurred during the postnatal life (after 5 years), under the influence of multiple secondary factors. We, therefore, recommend the utilization of such anomalies as early diagnostic “markers” for the risk of enuresis.

CONCLUSIONS

Analysis of digital dermatoglyphs in patients suffering from enuresis revealed ample pathological modifications, suggestively illustrated at group level by a significantly higher frequency of several distortions relative to normal cases, distortions that accompany other types of brain afflictions, albeit at different percent values.

Present in both girls, and especially in boys, on both hands, yet prevailing on the left one (i.e. known as carrying most of the malformative sketches), these distortions include:

- *an unexpectedly high increase of the frequency for W and A to the detriment of L*, seen as considerably lower than in the reference;
- *the presence on fingers (mainly V and IV) of the racketoid loops*, absent in the reference;
- *a sensible increase in the radially of the digital structures*, prevalent on fingers II and III;
- *a much higher occurrence of the bilateral and individual monomorphism*, up to values that render the pattern of enuretics quite similar to that found in autistic, epileptic and encephalopathic patients (which actually explains the deep clinical implications of such anomalies upon their carriers).

To such important distortions, one should add those concerning the reduced sexual – and, in part, bilateral differences observed in the distribution of these dermatoglyphic patterns. Such patterns can be considered malformative sketches of the digital dermatoglyphic picture, even if their distribution tendencies, as a function of sex, laterality and position on finger, may be included in the classical schemes of the apparently normal populations from which the patients originate.

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STATURE, POIDS, OBÉSITÉ ET VIEILLISSEMENT: ÉTUDE D'UN GROUPE DE MAROCAINS ÂGÉS DE 60 ANS ET PLUS

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A transversal study have been taken, involving 451 Moroccans of 60 years old and more in the Wilaya of Marrakesh. The purpose was to study in a descriptive way the variation according to the age and to gender, of some anthropometrical parameters (stature, weight and body mass index), as well as the association between the nutritional state and some biodémographical and sociocultural factors. The analysis of the anthropometrical variables according to age, have shown a decrease in age for men and women as well, but which is statistically significant only for the stature.

For the nutritional state, the obese persons represent 16.4% of the studied group, with clearly significant difference for women, these latest are twice more obese than men. However, we have noticed a negative association between the gain of weight and age. At last, from this analysis, it comes out that according to biodemographical and sociocultural characteristics of the studied group, that the gain of weight is linked undoubtedly to gender and to the place of residence as well (urban-rural).

Key words: stature, weight, obesity, ageing, marocco.

INTRODUCTION

Le vieillissement, en tant que phénomène biologique et démographique, constitue l'un des phénomènes de la post-transition démographique les plus marquants de l'histoire de l'humanité, non seulement par son ampleur et ses conséquences sur la société, mais aussi par le caractère très hétérogène et multifactoriel de son processus (Grand et colab., 1991). Il n'y a pas de définition claire du vieillissement, ni de consensus sur la façon de le définir: l'âge chronologique ne correspond pas toujours à un âge physiologique référencé et les

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événements sociaux comme la retraite ou le veuvage peuvent accentuer fortement la marque du temps. On peut distinguer deux concepts essentiels et complémentaires: le vieillissement biologique ou individuel et le vieillissement démographique.

Le vieillissement biologique ou sénescence peut être défini comme la somme des modifications anatomiques, histologiques et physiologiques, survenues au cours du temps, au sein des différentes structures cellulaires, dans les différents organes et systèmes de l'individu. C'est un processus continu et commun à tous les êtres vivants, mais à des rythmes différents. Au niveau de l'organisme, le vieillissement biologique désigne habituellement l'ensemble des modifications d'ordre morphologiques, physiologiques et biochimiques qui surviennent dans l'organisme avec l'avance en âge, et qui diminuent aussi la résistance de l'organisme aux pressions de l'environnement (Cassou et colab., 1996).

Le vieillissement différentiel est une facette importante de l'analyse de la variabilité humaine, mais il est encore peu étudié dans cette perspective (Pearson et colab., 1989, Eveleth, 1992). En effet, les phénomènes de sénescence sont des phénomènes naturels gouvernés par de nombreux facteurs d'ordre biologiques, génétiques, culturels et socio-économiques, et affectent la plupart des dimensions corporelles (Susanne, 1986).

De nombreux travaux ont démontré que beaucoup de changements quantitatifs dans la composition corporelle surviennent avec l'âge notamment l'involution de la stature, augmentation de la masse grasse et une diminution de la masse maigre avec l'âge, quelque soit le genre (Adalian et colab., 2002, Beaufrère et colab., 2000, Guo, 1999).

L'augmentation anormale ou excessive de la masse grasse qui définit simplement l'obésité est associée à de nombreuses complications métaboliques et dégénératives qui diminuent l'espérance de vie ou altèrent gravement la qualité de vie (Kotz et colab., 1999, Jung, 1997). La prévalence de la surcharge pondérale et de l'obésité augmentent avec l'âge, mais diminue après l'âge de 65 ans (Kaplan et colab., 2003). En effet, de nombreux facteurs différentiels d'ordre génétique, environnemental, socioculturel et ceux relevant du mode de vie notamment l'activité, la culture alimentaire, l'évolution des modes de transport, l'urbanisation... pouvaient induire de larges différences dans le vieillissement de caractères corporels (Boëtsch et colab., 2000, Finch, 1990, Perissinotto et colab., 2002).

À notre connaissance, aucune étude sur l'évolution des caractères anthropométriques et de l'état nutritionnel chez les personnes âgées de 60 ans et plus n'a été réalisée au Maroc. Ainsi, l'objectif de cette étude est de décrire d'une manière descriptive la variation avec le genre et l'âge des individus de la stature, du poids et de l'indice de masse corporelle. Aussi, déterminer la prévalence de la surcharge pondérale et de l'obésité chez ces personnes âgées et de saisir le lien entre quelques caractéristiques biodémographiques et socio-culturelles du groupe qui leur sont associées.

MÉTHODE

La collecte des données a été faite à domicile et dans les formations sanitaires de la province de Marrakech en 2007–2008. Les données collectées sont transversales et portent sur 247 hommes et sur 204 femmes bien portant au moment de l'enquête et dont l'âge est compris entre 60 et 89 ans. Les caractéristiques biodémographiques et socio-culturelles ont été obtenues à travers un questionnaire adressé aux sujets enquêtés. Ces caractéristiques concernent l'âge, le genre, le lieu de résidence, l'état matrimonial, le niveau d'étude et l'activité professionnelle. Les mesures anthropométriques, stature, poids ont été prises conformément aux recommandations du Programme de Biologie International (Weiner, 1969). La stature, en cm, appréciant la croissance osseuse en longueur a été prise à l'aide d'une toise verticale, graduée de 0,1 cm et le poids, en kg, a été déterminé par une balance pèse-personne correctement tarée et suffisamment précise (type Seca, précision de 0,1 kg).

A partir de ces deux variables, nous avons déterminé pour chaque individu l'indice de masse corporelle ou indice de Quételet (IMC) qui est égal au rapport du poids (en kg) au carré de la stature (en m²). Cet indice P/T^2 , bien que corrélé au poids et à la masse grasse, n'exprime aucune liaison avec la stature (Pineau, 1995), (Tam et colab., 1999) et il est considéré comme le critère de sélection le plus fiable et l'indice de corpulence le plus utilisé (OMS, 1995) dans les études épidémiologiques, nutritionnelles et cliniques notamment concernant l'estimation du déficit ou l'excès pondéral d'un sujet, l'adiposité, l'obésité etc.

Pour l'étude de la variation et de l'évolution de ces variables anthropométriques selon le genre et l'âge, nous avons réparti les valeurs moyennes des hommes et des femmes étudiés par trois classes d'âge de 10 ans chacune. Les résultats obtenus sont comparés à ceux observés dans d'autres populations qui ont fait l'objet de publications. De même, nous avons déterminé les 3^{ème}, 25^{ème}, 50^{ème}, 75^{ème} et 97^{ème} percentiles (P3, P25, P50, P75, P97) des variables retenues dans cette étude selon la méthode LMS (Pan et colab., 2005).

L'évaluation de l'état nutritionnel du groupe étudié a été faite à partir de l'indice de masse corporelle et selon les normes de l'OMS (OMS 1995) définies pour l'adulte et qui demeurent les plus utilisées pour toutes les populations, toutes les classes d'âge et quel que soit le genre:

- Maigre: $IMC < 18.5 \text{ kg/m}^2$
- Normalité: $18.5 \text{ kg/m}^2 \leq IMC < 25.0 \text{ kg/m}^2$
- Surcharge pondérale: $25.0 \text{ kg/m}^2 \leq IMC < 30.0 \text{ kg/m}^2$
- Obésité: $IMC \geq 30 \text{ kg/m}^2$

Le traitement statistique des données a été fait par les logiciels SPSS pour Windows et «LMSChartMaker» (Cole et colab., 2006).

RÉSULTATS

1°) Caractéristiques bio-démographiques et socio-culturelles du groupe étudié

L'étude a touché un groupe de 451 individus de la province de Marrakech (Maroc) dont 247 hommes (54.8%) et 204 femmes (45.2%). L'âge des individus étudiés varie de 60 à 89 ans avec une moyenne de l'ensemble de 69.1 ans (écart type = 7.2 ans). Selon le genre, nous n'avons enregistré aucune différence statistiquement significative (U de Mann-Whitney = 1.07): les âges moyens des hommes et des femmes sont relativement identiques, soit respectivement 69.4 ans (écart type = 7.1 ans) et 68.8 ans (écart type = 7.2 ans).

La répartition du groupe étudié par classe d'âge de 10 ans laisse apparaître une prédominance (plus de 50%) pour la classe des personnes âgées de 60–69 ans aussi bien dans l'ensemble que selon le genre. La distribution par classes d'âge des hommes et des femmes est statistiquement non significative ($\chi^2 = 2.56$ non significatif à 2 degrés de libertés; tableau I). Selon le lieu de résidence des sujets étudiés, on a presque autant de personnes des environs de la ville de Marrakech (rural) que des personnes citadins, soit respectivement 48.6% et 51.4% (tableau I). Ces pourcentages sont relativement similaires à ceux du rapport national de la politique de population de 2005 sur la question des «personnes âgées au Maroc» (CERED, 2006), soit 47.8% des ruraux et 52.2% de citadins. Par rapport au genre, la fréquence des femmes citadines est relativement supérieure à celle de leurs homologues d'origine rurale, toutefois la différence est non significative ($\chi^2 = 2.3$, non significatif à 1 degré de liberté).

Tableau I

Répartition, en pourcentage, des caractéristiques démographiques et socio-culturelles des hommes et des femmes étudiés

	Hommes		Femmes		Total	Test χ^2
	Effectif	Pourcentage	Effectif	Pourcentage	Pourcentage	
Classes d'âge						
60–69 ans	130	52.6	119	58.3	55.2	2.6 ns
70–79 ans	89	36.0	59	28.9	32.8	
80–89 ans	28	11.3	26	12.7	12.3	
Lieu de résidence						
Urbain	119	48.2	113	55.4	51.4	2.3 ns
Rural	128	51.8	91	44.6	48.6	
Etat matrimonial						
Marié (e)	222	89.9	81	39.7	39.7	133.0*
Veuf (ve)	16	6.5	109	53.4	27.7	
Célibataire/Divorcé(e)	9	3.6	14	6.9	5.1	
Niveau d'étude						
Aucun	195	78.9	188	92.2	84.9	15.2*
Primaire)	14	5.7	4	2.0	4.0	
Secondaire et plus	38	15.4	12	5.9	11.1	
Activité professionnelle						
Actif (ve)	117	47.4	20	9.8	30.4	74.5*
Inactif (ve)	130	52.6	184	90.2	69.6	

ns: non significatif; *: $p < 0.001$

La majorité des hommes sont mariés au moment de l'enquête (89.9%), contre seulement 39.7% des femmes (tableau I). La fréquence du veuvage est de 27.7% de l'ensemble ($n = 125$), mais, ce sont les femmes qui enregistrent la fréquence la plus élevée (53.4% des femmes contre 6.5% des hommes), ce qui peut être attribuée à une mortalité différentielle selon le genre; à une différence d'espérance de vie en faveur des femmes (l'espérance de vie est passé de 60.2% pour les femmes et 58.1% pour les hommes en 1962 à 72.7 ans pour les femmes et 68.5% pour les hommes en 2003, (CERED 2004), à un écart d'âge entre les conjoints et enfin à une grande possibilité des hommes de se remarier. Enfin, le célibat et le divorce demeurent très faibles et concernent respectivement 5.0% des sujets étudiés (1.0% de célibataires et 4.0% de divorcé(es). Ces résultats en accord avec les résultats du CERED (CERED 2004) où les hommes mariés et veuves représentent respectivement 90.2% et 5.9% et les femmes 40.9% et 54.4%. Bien que cette différence du statut marital soit très apparente entre les hommes et les femmes, on relève tout au moins que sur le plan social, plus de deux tiers de femmes séparés (veuves ou divorcées) appartiennent à des familles composées (enfants et petits enfants et/ou parents proches), dont les membres leur apporteront plus de soutiens et de soins.

Pour le niveau d'étude, paramètre essentiel, pour la compréhension de la façon de vivre et des aspirations d'une population, on remarque la faiblesse du niveau d'instruction des individus de notre échantillon. La majorité des individus (84.9%) est analphabète et n'a jamais fréquenté un établissement scolaire ou coranique. Par ailleurs, parmi les personnes alphabétisées, seules 11.1% ont un niveau d'instruction secondaire et plus (tableau I). Aussi, on note une nette disparité entre les hommes et les femmes en faveur des premiers: 92.2% des femmes contre 78.9% des hommes ($\chi^2=15.2$ à 2 degrés de liberté, $p<0.001$); valeurs proches de celles enregistrées par le CERED (CERED 2004) avec un taux d'analphabétisme des hommes et des de femmes âgées de 60 ans et plus respectivement de 71.3% et 95.2%.

La situation matérielle aura certainement une influence sur les conditions générales de la vie des personnes âgées et plus particulièrement celles des retraités sans pension. De même, l'activité physique aura des conséquences sur la constitution et la composition corporelle de l'individu, en réduisant l'adiposité et par conséquent le contrôle de l'embonpoint, contrairement à une personne inactive. Les individus étudiés ont été répartis en deux groupes suivant leur statut professionnel et le niveau d'activité, ce qui permet de prendre en compte les individus retraités ou sans profession. Ainsi, environ 47.4% des hommes se sont déclarés actifs au moment de l'enquête contre 9.2% des femmes (tableau I); valeurs encore en accord avec les données du CERED (CERED 2004): 41.2% des hommes âgés de 60 ans et plus sont actifs contre 5.0% des femmes. Les femmes n'exerçant pas d'activité professionnelle, restent attachées aux travaux domestiques.

2°) Stature, poids et indice de masse corporelle selon le genre

Les valeurs moyennes enregistrées pour la stature et le poids sont 164.8 cm (écart type = 7.7 cm) et 66.8 kg (écart type = 13.1 kg) pour les hommes et 154.1 cm (écart type = 7.1 cm) et 63.4 kg (écart type = 15.6 kg) pour les femmes. La différence staturale entre les hommes et les femmes est plus importante que celle pondérale, soit respectivement 10.7 cm et 3.4 kg. En effet, les hommes du groupe étudié sont plus grands et plus lourds que les femmes et la différence entre les valeurs moyennes calculées est très hautement significative (respectivement les valeurs du test de Mann-Withney pour la stature et le poids sont égales à 12.7 $p < 0.001$ et 2.5 $p < 0.05$) (tableau II). Cette différence trouvée entre les hommes et les femmes pour ces variables anthropométriques en accord avec à ce qui a été observé dans d'autres populations (Chiu et colab., 2000, Clara et colab., 2000, Corish et colab., 2003, Lemonnier et colab., 1991, Perissinotto et colab., 2002, Sanchez-Garcia et colab., 2007) (tableau II). La différence entre les valeurs moyennes des différentes populations pourrait être attribuée aux facteurs environnementaux et génétiques qui caractérisent chaque population.

Tableau II

Valeurs moyennes (moyenne $\pm$ écart type) de la stature (cm), du poids (kg) et de l'indice de masse corporelle (kg/m^2) des hommes et des femmes étudiés, comparées à celles d'autres populations mondiales

	Hommes			Femmes		
	Stature	Poids	IMC	Stature	Poids	IMC
Présente étude (≥ 60 ans)	164.6 $\pm$ 7.7	66.8 $\pm$ 13.1	24.5 $\pm$ 4.1	154.1 $\pm$ 7.1	63.4 $\pm$ 15.6	26.5 $\pm$ 5.5
France (66–97 ans) ¹	162.0	68.0	26.1	152.0	63.0	27.1
Taiwan (≥ 65 ans) ²	163.8 $\pm$ 6.2	63.4 $\pm$ 10.5	23.6 $\pm$ 3.4	151.2 $\pm$ 5.6	55.8 $\pm$ 9.3	24.4 $\pm$ 3.7
Nigeria (≥ 65 ans) ³	173.5 $\pm$ 16.0	57.2 $\pm$ 8.3	19.3 $\pm$ 2.6	162.7 $\pm$ 7.8	54.8 $\pm$ 8.8	20.7 $\pm$ 2.0
Italie (65–84 ans) ⁴	165.7 $\pm$ 6.7	72.6 $\pm$ 10.7	26.4 $\pm$ 3.7	152.2 $\pm$ 7.5	63.8 $\pm$ 13.1	27.6 $\pm$ 5.7
Mexique (≥ 60 ans) ⁵	163.2 $\pm$ 8.5	70.3 $\pm$ 12.3	26.4 $\pm$ 4.4	152.6 $\pm$ 7.5	62.7 $\pm$ 11.6	26.8 $\pm$ 4.4
Irlande (≥ 65 ans) ⁶			26.8			26.7

¹ (Lemonnier et colab., 1991); ² (Chiu et colab., 2000); ³ (Clara et colab., 2000);

⁴ (Perissinotto et colab., 2002); ⁵ (Corish et colab., 2003); ⁶ (Sanchez-Garcia et colab., 2007)

Pour l'indice de masse corporelle (IMC), ce sont en revanche les femmes qui enregistrent la valeur moyenne la plus élevée, soit une moyenne de 26.5 kg/m^2 (écart type = 5.5 kg/m^2) contre 24.5 kg/m^2 (écart type = 4.1 kg/m^2) pour les hommes. La différence de distribution de l'IMC selon le genre est également très significative (U de Mann-Withney = 3.9, $p < 0.001$). Ce résultat pourrait être attribué à la différence importante de la stature entre les hommes et les femmes que celle du poids dont dépend l'indice de masse corporelle. Enfin, comme pour les autres variables anthropométriques citées, il a été rapporté aussi que dans l'ensemble des populations mondiales, les femmes enregistrent plutôt des valeurs moyennes de l'IMC supérieures à celles des hommes (tableau II).

3°) Evolution de la stature, poids et indice de masse corporelle avec l'âge

La distribution des valeurs moyennes et percentilaires de la stature en fonction de l'âge montre une nette décroissance aussi bien chez les hommes que chez les femmes, donnant ainsi lieu à un gradient décroissant de la stature avec l'accroissement de l'âge, bien qu'elle ne soit pas significative chez les femmes (tableau III). Par ailleurs, d'après nos résultats, cette diminution s'effectue presque au même rythme chez les hommes et les femmes: les personnes âgées de 60–69 ans ont en moyenne environ 3 cm de plus que leurs homologues âgés de 80–89 ans. Les études anthropologiques sur le vieillissement biologique ont montré que la stature subissait des modifications dans le sens d'une diminution, en raison de la tendance au tassement du buste qui pourrait être dû à la compression des vertèbres, des modifications de taille et de forme des disques vertébraux, de la perte de tonus musculaire, à de l'ostéoporose, et à l'accroissement des courbures de la colonne vertébrale (Launer et colab., 1996). Les marocains n'échappent pas à la règle et les résultats observés dans cette étude sont en accord avec ceux trouvés chez d'autres populations (Launer et colab., 1996). En effet, la diminution de la stature avec l'âge a été observée dans diverses populations de différentes origines géographiques et ethniques et la vitesse de diminution est de 1 à 2 cm par décennie, et elle est plus rapide au fur et à mesure que l'âge avance (Launer et colab., 1996, Svanborg et colab., 1991).

Cependant, les études transversales ne tiennent pas compte à l'évolution séculaire de la stature largement démontrée dans diverses populations dans le monde (Rebato, 1998, Susanne et colab., 2001). La stature des cohortes de personnes âgées est en moyenne plus faible que celles des cohortes de jeunes, ce qui entraîne encore une diminution de la stature réelle observée dans les études longitudinales. Une étude récente sur les enfants et adolescents marocains examinés en 1982 et leurs homologues en 2002, a montré un gain de taille de 3 cm pour les garçons et de 4 cm pour les filles entre les deux périodes d'études: à l'âge de 18 ans, respectivement 172 cm et 162 cm pour les garçons et les filles examinés en 2002 contre 169 cm et 158 cm pour leurs homologues étudiés en 1982 (Lamtali, 2009). La mortalité et la morbidité différentielle peuvent avoir également une influence sur les valeurs moyennes de la stature dans les études transversales. En effet, plusieurs facteurs d'ordre environnemental, génétique contribueront à de telles modifications de la stature.

La variation pondérale n'est pas statistiquement significative selon l'âge chez les hommes. Chez les femmes, par contre, on constate une nette diminution statistiquement significative (environ une perte d'environ 6 kg en moyenne: différence entre la première et la dernière classe d'âge) (tableau III). Par ailleurs, la tendance générale, aussi bien pour les hommes que pour les femmes, consiste en une association négative du poids avec l'âge; les coefficients de corrélation sont négatifs, bien qu'ils ne soient pas statistiquement significatifs. Contrairement à la stature, le poids est

Tableau III

Distribution des valeurs moyennes et écart-type ($m \pm \sigma$) et des percentiles (P) de la stature (cm), du poids (kg) et de l'indice de masse corporelle (kg/m^2) des hommes et des femmes étudiés par classes d'âge

	Hommes						Femmes					
	m ± σ	P3	P25	P50	P75	P97	m ± σ	P3	P25	P50	P75	P97
Stature (cm)												
60-69 ans	165.5 ± 7.1	152.1	161.7	166.7	171.9	182.8	155.3 ± 5.7	141.2	151.2	156.5	161.9	173.2
70-79 ans	164.6 ± 8.2	150.1	159.5	164.5	169.6	180.4	153.2 ± 7.3	140.4	150.3	155.6	160.9	172.2
80-89 ans	162.2 ± 8.4	149.0	158.4	163.3	168.4	179.1	151.0 ± 10.6	139.6	149.5	154.6	160.0	171.2
Test MW	6.8*						9.2+					
Coefficient R	-0.15 +						-0.10 ns					
Poids (kg)												
60-69 ans	68.2 ± 13.0	47.3	60.6	68.7	77.8	100.1	65.1 ± 13.9	39.5	55.0	64.3	74.9	100.0
70-79 ans	65.2 ± 12.7	44.9	57.6	65.2	73.9	95.0	62.8 ± 16.9	38.6	53.8	62.9	73.2	97.8
80-89 ans	65.2 ± 14.2	43.8	56.1	63.6	72.0	92.7	59.5 ± 17.8	37.8	52.6	61.5	71.6	95.7
Test MW	3.7 ns						8.8+					
Coefficient R	-0.10 ns						-0.12 ns					
IMC (kg/m²)												
60-69 ans	24.8 ± 3.9	17.9	21.8	24.2	26.9	33.7	26.9 ± 5.3	17.6	22.6	25.7	29.2	38.0
70-79 ans	24.0 ± 4.2	17.5	21.4	23.7	26.4	33.1	26.5 ± 5.9	17.1	22.0	25.0	28.5	37.0
80-89 ans	24.7 ± 4.2						24.3 ± 4.9					
Test MW	2.6 ns						5.9+					
Coefficient R	-0.06 ns						-0.09 ns					

Test MW: Test de Mann-Whitney; R: coefficient de corrélation de Spearman; +: $p < 0.05$; *: $p < 0.001$

facilement affecté par les facteurs environnementaux à court terme de la vie et il est soumis à de nombreuses fluctuations (Chumlea et colab., 1989). De ce fait, il est difficile de confirmer ces résultats à partir des données à caractère transversale de cette étude. En effet, la variation pondérale en fonction de l'âge observée dans notre échantillon, suit la même tendance observée dans les populations occidentales au moins jusqu'à l'âge de 70 ans. Après cet âge, la diminution quelque soit le genre peut être attribuée à des facteurs sélectifs (morbidité, mortalité...) (Chumlea et colab., 1988, Launer et colab., 1996).

Aussi, le poids ne varie pas seulement d'un individu à l'autre, mais également pour un même individu avec le vieillissement. La perte d'eau serait une cause importante de diminution du poids, aussi la diminution de la masse des cellules musculaires, qui est en général plus prononcée chez l'homme (Steen et colab., 1985, Svanborg et colab., 1991).

Pour l'indice de masse corporelle, la distribution des valeurs moyennes, ainsi les 50^{èmes} percentiles en fonction de l'âge (tableau III), exprime également corrélation négative non significative et une diminution moindre que celle enregistrée pour la stature et le poids. D'une manière générale, les valeurs moyennes de l'IMC suivent également la même tendance observée dans les populations mondiales (Launer et colab., 1996).

4°) Etat nutritionnel et caractéristiques bio-démographiques, socio-économiques et culturelles du groupe étudié

La répartition du groupe des marocains étudiés selon le genre et par classes de l'IMC selon les normes de l'OMS est présentée dans le tableau IV. Dans l'ensemble, la proportion des personnes maigres ($IMC < 18.5 \text{ kg/m}^2$) est de 3.8% ($n=17$), des normo-pondéraux ($18.5 \text{ kg/m}^2 < IMC < 25 \text{ kg/m}^2$) est de 47.9% ($n=216$). La prévalence de la surcharge pondérale et de l'obésité dans notre groupe est respectivement de 31.9 ($n=144$) et de 16.4% ($n=74$); valeurs qui sont relativement similaires à celles trouvées chez les français âgés de 65 ans (respectivement 38.3% et 17%) (Enguerran et colab., 2007).

En raison du faible pourcentage de la catégorie des personnes maigres – 9 hommes (3.6%) et 8 femmes (3.9%) –, nous avons regroupé en une seule catégorie les personnes ayant un $IMC < 25 \text{ kg/m}^2$, c'est-à-dire les maigres et les normo-pondéraux (tableau IV). Dans l'ensemble, on note une différence de l'état nutritionnel évalué par l'IMC entre les hommes et les femmes ($\chi^2 = 14.5$ à 3 degrés de liberté, $p < 0.01$). Cette hétérogénéité existe toujours entre les hommes et les femmes et qui persiste même chez les personnes âgées (Kaplan et colab., 2003). En effet, ce sont les hommes qui enregistrent significativement la fréquence la plus élevée pour la classe d' $IMC < 25 \text{ kg/m}^2$ (test de comparaison de deux pourcentages $\theta = 30.21$, $p < 0.001$). En revanche, la situation s'inverse en faveur des femmes aussi bien pour la surcharge pondérale que pour l'obésité, soit 34.3% et 22.5% contre

30.0% et 11.3% chez des hommes, mais la différence n'est significative que pour l'obésité (test de comparaison de deux pourcentages $\theta = 2.30$ $p < 0.001$).

Tableau IV

Répartition, en pourcentage, des caractéristiques démographiques et socio-culturelles par classes de l'indice de masse corporelle du groupe étudié

	Maigres – Normaux IMC < 25 kg/m ²	En surpoids 25 ≤ IMC < 30 kg/m ²	Obèses IMC ≥ 30 kg/m ²	Test χ^2
Genre				
Hommes (n=247)	58.7	30.0	11.3	14.5*
Femmes (n=204)	43.1	34.3	22.5	
Classes d'âge				
60–69 ans (n= 249)	45.8	36.9	17.3	8.4+
≥ 70 ans (n= 202)	58.9	25.7	15.3	
Lieu de résidence				
Urbain (n=232)	32.3	42.2	25.4	74.2*
Rural (n= 219)	72.1	21.0	6.8	
Etat matrimonial				
Marié(e) (n=303)	55.1	30.7	14.2	5.7 ns
Veuf(ve) (n=125)	44.8	33.6	21.6	
Célibataire/Divorcé(e) (n=23)	43.5	39.1	17.4	
Alphabétisation				
Analphabète (n= 383)	55.6	28.5	15.9	17.6*
Alphabète (n= 68)	29.4	51.5	19.1	
Activité professionnelle				
Actif(ve) (n= 137)	65.0	23.4	11.7	13.9*
Inactif(ve) (n= 314)	45.9	35.7	18.5	

ns: non significatif ; +: $p < 0.05$; *: $p < 0.001$

Egalement, il ressort des résultats du tableau IV, une association entre obésité, lieu de résidence ($\chi^2=74.2$, $p < 0.001$) et activité professionnelle ($\chi^2=13.9$, $p < 0.001$). Bien que la prévalence de l'obésité soit en augmentation rapide, plus particulièrement chez les femmes, la fréquence des femmes marocaines urbaines est deux fois plus importante que celle des femmes rurales, soit respectivement 13.8% contre 6.5% (Azemat et colab., 2005). Mais, cette prévalence trouvée auprès des femmes en âge de procréation (15–49 ans) ne reflète pas les différences régionales d'ordre géographique, économique, ethnique, culturelle et de disponibilité alimentaire. Au Maroc, les citoyens passent d'un régime alimentaire traditionnel à une alimentation à base d'aliments transformés, ce qui contribuera à un accroissement de la prévalence de l'obésité, sans oublier la sédentarité associée au processus d'urbanisation et la perception de l'obésité comme un signe de force, de puissance, de bonne santé et de prospérité, surtout chez les classes pauvres (Rguibi et colab., 2003). Quant à l'activité professionnelle, il est

bien évident que contrairement à la sédentarité, toute activité est une forme d'exercice physique chez les personnes actives, ce qui empêchera la prise de poids.

Tableau V

Variables du modèle de régression logistique binaire et facteurs biodémographiques et socio-culturelles de surpoids et d'obésité

	B	E.S.	χ^2	ddl	p	Odds Ratio (IC à 95%)	R
Genre	0.518	0.265	3.83	1	<0.05	1.679 (0.999–2.822)	0.16
Âge	–0.033	0.016	4.54	1	<0.05	0.967 (0.938–0.997)	–0.10
Lieu de résidence	–1.600	0.225	50.55	1	<0.001	0.202 (0.130–0.314)	–0.40
Etat matrimonial	0.033	0.211	0.02	1	ns	1.033 (0.684–1.561)	0.09
Alphabétisation	0.672	0.338	3.96	1	<0.05	1.957 (1.010–3.793)	0.19
Activité professionnelle	0.439	0.256	2.94	1	ns	1.551 (0.939–2.560)	0.18
Constante	2.292	1.463	2.46	1		9.900	

B: Constante; **SE:** Somme des écarts; **ddl:** degré de liberté; **p:** degré de signification du test de χ^2 ; **Odds ratio:** rapport de cote; **IC:** intervalle de confiance; **R:** coefficient de corrélation

Par ailleurs, on constate une association négative entre surcharge pondérale, obésité et l'âge: après 70 ans, une diminution statistiquement significative de la fréquence des personnes en surpoids et les obèses a été observée dans ce groupe étudié ($\chi^2 = 8.4$ à 2 degrés de libertés $p < 0.05$). Après 70 ans, presque 60% des personnes étudiées sont normo-pondérales, en raison de la perte de poids par âge constatée précédemment.

Le niveau d'éducation, dans notre étude, est en association négative également avec le surpoids et l'obésité, bien que cet indicateur socioculturel joue un rôle manifeste à l'égard de l'éducation sanitaire par le biais de la connaissance des risques liés à la prise de poids. Ainsi et contrairement aux études ayant observé une association significativement positive entre le niveau d'étude et la prise de poids (Enguerran et colab., 2007, Kaplan et colab., 2003). Ce sont en effet, les personnes alphabètes du groupe étudié qui enregistrent les fréquences les plus élevées de surcharge pondérale et d'obésité, soit respectivement 51.3% de personnes en surpoids et 19.1% d'obèses contre 28.5% et 15.9% des individus analphabètes. Toutefois, en examinant cette association en plus selon le genre, on a trouvé que les fréquences les plus élevées pour la surcharge pondérale et l'obésité sont celles des hommes alphabètes ($\chi^2 = 19.15$, $p < 0.001$), par contre chez les femmes, aucune différence significative n'est observée entre les alphabètes et leurs homologues analphabètes ($\chi^2 = 4.22$, non significatif). Ce paradoxe avec les deux études citées précédemment pourrait être attribué à l'effectif des personnes alphabètes de notre échantillon, puisque le taux d'alphabétisation n'est que de

15.1% (tableau I) et aussi au manque de l'information sur le nombre précis d'années d'études suivies par chacun des individus.

Quant à la relation entre l'état nutritionnel et le statut marital, nous n'avons noté aucune différence significative bien que ce sont les veufs, les divorcés et les célibataires qui représentent le plus les classes des individus en surpoids et obèses. Même la comparaison entre les hommes entre eux et entre les femmes entre elles, nous n'avons enregistré aucune association significative: la valeur du test de χ^2 entre les hommes est égale à 1.85 et de 0.81 entre les femmes. Ces résultats ne s'accordent pas avec ceux trouvés chez les canadiens où les individus mariés sont significativement obèses que leurs homologues non mariés (Kaplan et colab., 2003).

Enfin, pour tester le rôle de la variable la plus significative de celle qui n'en est que la conséquence et aussi de mettre en évidence le poids de chacune des variables étudiées sur la prise du poids, nous avons effectué une analyse de régression logistique binaire. La variable introduite en tant que variable dépendante correspond au fait d'être d'avoir un $\text{IMC} \geq 25\text{kg/m}^2$ (en surpoids ou obèse) ou d'avoir un $\text{IMC} < 25\text{kg/m}^2$. Les variables explicatives sont celles décrites plus haut (tableau I) et qui correspondent au genre, l'âge, le lieu de résidence, l'état matrimonial, l'alphabétisation et l'activité professionnelle.

Il ressort des résultats du modèle de régression utilisé (tableau IV) que, par ordre d'importance, le lieu de résidence ($\chi^2 = 50.55$, $R = -0.40$) et les variables âge, genre et l'alphabétisation. Il paraît donc que le lieu de résidence est significativement le plus lié au risque de surpoids et d'obésité. Il est bien évident que l'urbanisation, en tant que modèle du «processus de modernisation» intègre de nombreuses composantes de l'environnement qui peuvent avoir une influence directe sur la prise de poids des citoyens (changements incessants du comportement alimentaire, qualité du régime alimentaire, mode de vie, sédentarité, mode de transports, moyens de loisirs...). En ce qui concerne les autres variables, il est bien prouvé dans de nombreuses études que ce sont les femmes qui enregistrent les taux de surpoids et d'obésité les plus élevés. Quant, à l'âge, la surcharge pondérale et l'obésité diminuent avec la diminution marquée du poids après l'âge de 70 ans. Cette diminution peut être attribuée à la morbidité qui est également liée à l'âge (Chumlea et colab., 1988, Launer et colab., 1996). En effet, la corpulence humaine est caractérisée par une importante variabilité aussi bien inter- qu'intra-populationnelle, inter- et intra-individuelle, dans l'espace et dans le temps, pour un même individu, en fonction de l'âge, des habitudes de vie et de l'état de santé, voire entre individus en fonction du genre, de l'origine géographique et ethnique, de la culture, du statut socioéconomique, du niveau d'étude ou encore des caractéristiques génétiques. Les facteurs qui influencent la surcharge pondérale et l'obésité sont nombreux d'ordre héréditaire, environnemental, socioculturel... et qui interagissent ensemble, mais d'après les résultats de cette étude, il paraît que le lieu de résidence et le genre sont les plus déterminants pour la prise du poids dans ce groupe de personnes âgées étudiées.

CONCLUSION

Sur un échantillon de marocains et marocaines âgés de 60 ans et plus, nous avons cherché à travers cette étude la relation entre le genre, l'âge des personnes étudiées et quelques paramètres anthropométriques la stature, le poids et l'indice de masse corporelle. Ainsi, nous avons relevé dans cette étude que ce sont les hommes qui enregistrent les valeurs moyennes les plus élevées pour les variables stature et poids avec une différence statistiquement significative. En revanche, pour l'indice de masse corporelle, la situation s'inverse en faveur des femmes.

L'étude de ces variables anthropométriques en fonction de l'âge, a montré une décroissance significative de la stature avec l'accroissement de l'âge, comme il est observé dans la majorité des populations et ce quelque soit le genre. De même pour le poids et l'indice de masse corporelle, quoique la décroissance soit non significative.

Quant à l'état nutritionnel, la prévalence de l'obésité dans le groupe étudié est de 16.4% avec une prévalence chez les femmes qui est deux fois plus importante que celle des hommes. L'étude de la relation entre l'état nutritionnel et quelques paramètres bio-démographiques et socioculturels laisse apparaître, en plus d'une hétérogénéité entre les hommes et les femmes une association significativement positive avec le lieu de résidence et l'activité professionnelle, mais en revanche, elle est négative avec l'avancée en âge.

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PRIVATE PROPERTY: FROM POSTSOCIALISM TO NEOLIBERALISM?

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Postsocialist privatization in Central and Eastern Europe has been based on the belief that private property simultaneously forms the backbone of a market economy and facilitates the rational use of natural resources. In the process of privatization, however, governments often neglect the local-historical and social dimensions of property rights, as they prioritize aspects of ownership that are oftentimes alien to the new landowners. Whereas governments emphasize economic and individualist elements of private property, many villagers contest the notion of land as a source of individual wealth. Negotiations over postsocialist property thereby resemble the struggles associated with neoliberal projects observed elsewhere. This introduction argues that postsocialist experiences provide important insights for broader work on neoliberalism.

Key words: postsocialism, neoliberalism, private property, embeddedness, Central and Eastern Europe.

This special issue is the outcome of an international workshop hosted by the New Europe College Institute for Advanced Studies Bucharest in June 2007. The workshop facilitated a review of research on the development of private property in postsocialist countries in Central and Eastern Europe. One of the key questions debated at the workshop was about the influence of international factors on postsocialist negotiations over property. The present special issue was conceived in response, as the question has not received sufficient attention in anthropological research on postsocialism (cf. Verdery, 2003, Hann, 2007). In this introduction, we explore how the neoliberal discourse on private property shapes villagers' understandings, discourses and practices regarding property in Central Eastern Europe with reference to the papers included in the issue.³ We surmise that, despite the rich anthropological literature on postsocialist property and rural transformations,

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³ Neoliberalism has been defined in many ways. We understand neoliberalism as an ideology, a policy framework, and a form of governmentality (see Schwegler, 2008).

understanding of postsocialist property and, more generally, social change is incomplete without further attention to the influence of international dynamics, in particular the role of neoliberal ideas, policies and techniques of governance.⁴

One of the first actions taken by newly-democratic governments throughout the postsocialist world has been the restoration of private property. This action was in part a response to citizens' expectations, but was also in line with the demands of international donors who viewed private property as the engine of a market economy. Much of the public and international discourse in the 1990s and early 2000s linked the privatization of former socialist assets to a number of economic and political benefits associated with private property. This belief is supported by associated research that links private property to economic efficiency (Deininger, 2003), poverty alleviation (de Soto, 2000), democracy building (Schwartz, 2006), and sustainable natural resource management (Hanna *et al.*, 1996). The belief in private property is also a key tenet of neoliberal projects, which connect private property to the market, efficiency, and maximization of economic value.

In both postsocialist and neoliberal projects, the state plays a central role in granting exclusive property rights and enforcing property laws (MacPherson 1978 [1992]). This belief has prompted a state-centric focus on property rights enforcement through the formation of legislation by multiple state and non-state actors (such as NGOs or international donors). Typically, what is labeled as "land reform" oftentimes entails the measurement, demarcation and registration of land plots, such as in Vietnam (Sikor, 2004) and in Mongolia (Mearns, 2004). There is a general agreement among state officials that the value of a property object (be it land, forest or other assets) is given by the clarity of ownership status, by the clarity of property rights and by the state enforcement of those rights. As a result, state officials around the world have implemented property reforms by first measuring and registering land plots, and then distributing ownership to recipients in the form of titles.

Yet much government action neglects the local-historical and social dimensions of property rights, as it emphasizes aspects of ownership that are oftentimes alien to new landowners, such as individual notions of economic efficiency. As Harvey's paper (this issue) points out, the Polish government intention to improve the land cadastre was taken under EU pressure in exchange for funding for agriculture. Yet the formal land cadastre system has clashed with actual land tenure practices. A clearly-demarcated land plot was also the *sine qua non* condition for the Romanian peasants to receive EU funds for their ownership, as Fox points out in her paper (this issue). In Vietnam, the state, under pressure from international donors, proceeded to survey, classify, map and register forests at

⁴ The literature is too expansive to be reviewed here. For particularly insightful discussions, see Verdery, 2003, Hann, 2002, Hann and the "Property Relations" Group 2003, and Cartwright 2001.

the expense of local customary arrangements (Sowerwine, 2004). Patterson (this issue) highlights how rural Moldovans preferred to remain in collective farming arrangements after independence, mainly because collective farms assumed social reproduction functions that were previously provided by the state. However, the government, under a USAID-sponsored program, individualized farm ownership in the name of private property and economic efficiency. The outcome of the program has been a general underdevelopment of agriculture, land fragmentation and an explosion of subsistence production, which has pushed Moldovan agriculture to the periphery of the global economy.

While governments emphasize the economic and individualist aspects of private property, villagers often oppose the notion of land as a source of individual wealth. In villages of Russia and Bulgaria, people tend to view land as a source for communal funds, a basis for collective enterprise, and an important resource to feed population (Humphrey, 1995; Kaneff, 1995, 1996; Hivon, 1998). In Romania, villagers asserted collective entitlements over a granary built by them during socialism (Verdery, 1998). Hann (1993) has depicted the strong emotional attachment of the elderly to particular plots in a Hungarian village. He describes the way villagers from the Hungarian village called Tazlar understand property through a myriad of social connections attached to land. In Poland, the rural population has demonstrated a strong cultural and social attachment to its forests and prevented their commodification (Staddon, Grykień this issue). There, as in other parts of the world, land is not a matter of economic strategy but rather embeds family bonds and historical identity.

Governments not only introduce new practices but also new vocabularies to deal with property, the relations between villagers and the state, and rural affairs, including terms such as decentralization, accountability and exclusive rights. The origins of this vocabulary are found in state administration and not in the discourse of rural people. This implicates a vision of rural property as enacted from the top downward, and reflects a western blueprint rather than villagers' visions. As Hann (2007) has pointed out, in the early 1990s the prevalent image over property was the one predicated by Western advisers as bearers of a neoliberal approach. That means, as Hann put it: "through obtaining a high degree of exclusive power over things, it is postulated that agents will exercise greater care over them, invest appropriately, and generally act such that the promotion of their selfish interests will be fully consistent with the collective welfare function of their society" (Ibid.: 296).

These few observations indicate how national governments have enacted neoliberal policies promoted by international financial institutions (Schwegler, 2008). Like it or not, government policies have made neoliberal ideology, techniques and practices a reality in many parts of Central and Eastern Europe. Postsocialist economic transformations have unfolded in a neoliberal age in the

context of an international interventionist environment. The entire transformation of former socialist countries has happened under the supervision of western advisors.⁵ Very often this involves “econolobbyists” (Wedel, 1998), a myriad of economic advisers paid by western governments and international donors to advise on market reforms. Usually, they prescribe an economic recipe in which market reform, privatization and economic efficiency are the key tenets. The advice provided by econolobbyists and their backstopping international institutions has not been impartial, however, but propagates a certain view of economic development: neoliberalism (Migdal and Schlichte, 2005). Governments, in turn, transmit this practice and ideology to the village level through land reform policies.

The contributions by Fox and Patterson point out concrete connections between villagers’ daily lives and larger-scale forces by highlighting the effects of the European Union’s Common Agricultural Policy and the influence of USAID. The case studies point to new dimensions of property relations and the emergence of new actors who are located thousands of kilometers away from villages but can still shape local property rights, as these actors influence rural notions of economic efficiency, private property, and the benefits of the market. For example, in order to receive funds from the European Union, rural inhabitants are required to identify their plots on an orthophotographic map, even if they are elderly or lack formal education. As such, villagers are forced to comply with the practices, techniques and ideas of international institutions, such as western requirements of clear boundaries, clear ownership and a disembedded idea of property.

The case studies illustrate how postsocialist rural populations are confronted with ideas, techniques and notions that do not belong to their world. They are exposed to these mechanisms through the direct influence of global forces and ideologies. Moreover, these global forces and ideologies produce new forms of social differentiation. The new forms of social differentiation are based, among other things, on knowledge and information about the new techniques of reading the landscape and property rights. For instance, those villagers able to imagine their land from “a bird’s eye perspective” as Fox puts it, i.e. to recognize their plot on the orthophotomaps, were in better position than those who lacked the imagination to see/recognize their plots on the aerial photos. Patterson (this issue) finds that international aid workers targeted farm managers to push land reform projects through faster. While this may appear to have perpetuated the old socialist elite hierarchy, farm managers entered into new commercial relationships with former members as a result of these projects. From this perspective, his paper adds to an already growing literature on postsocialism which points to the emergence of the rural postsocialist elite from the previous socialist elite (Verdery, 1999; 2003; Lampland, 2002; Mungiu-Pippidi, Althabe, 2002).

⁵ There is a growing literature on this topic of which we only mention Deacon & Stubbs (2007) and Sampson (2002).

At the same time, countries and people are not merely passive victims of global neoliberalism. Indeed, it is useful to think of neoliberalism as a double movement: governments preached private property just as much as villagers wanted to receive what they believed was theirs. A good example of rural people interest in private property is seen through Romanian villagers' impatience to take into their possession the land from the collective farm. Villagers from Dragomirești did not wait for the first Property Law (18/1991) to pass through the parliament to take back their lands. Instead, they relied on the information they had from their parents or from those old enough to know where their land was situated. In this way, the subsequent local land commission was forced to recognize these *de facto* rights (Dorondel, 2007). The spontaneous collective farm dissolution in Dragomirești is not unique. Von Hirschhausen (1997: 120) describes a similar situation in a village in Walachia (Southern Romania).

But the reasons motivating governments and villagers were oftentimes very different. Rural people sought enhanced rights to rural resources, but they wanted them on a variety of terms. Economic efficiency may have been a concern, but other factors, such as kinship, identity, family heritage, social well-being and respect, were just as, if not more, important.

We thus find that villagers from Romania, Moldova, Bulgaria and Poland have had their lives shaped by institutions and people located in other parts of the globe. They are urged to enter the world market system by adopting new norms, values and ideologies. This is what the present collection seeks to illustrate. Our insights demonstrate the utility of anthropological research that looks "up", as Fox puts it in her paper (this issue). The local ethnographic description does not suffice anymore. New phenomena such as globalization or transnational movements require ethnographers to rise their heads up from grounded ethnography in order to understand the complexity of the contemporary social change (Kearney, 1995).

Finally, before introducing each paper, we conclude that postsocialist experiences suggest important insights for broader work on neoliberalism. Negotiations over postsocialist property resemble the struggles associated with neoliberal projects observed elsewhere. These projects have private property as a core element of their politic and economic design. The question mark from the title does not intend to question whether the term postsocialist still makes sense. The term itself has been put already under close scrutiny (Verdery, 2002, Humphrey, 2002). We rather suggest a necessary change in the way of understanding rural people. New questions pounce upon our mind: How do we conceive villagers in a globalized, neoliberal world? What's the *direct* effect of the neoliberal project on villagers' lives, norms, beliefs and practices regarding property? And how can studies on postsocialism better highlight these changes?

THE CASE STUDIES

The present collection focuses on land and forest restitution as objects of property rights in postsocialist countries such as Bulgaria, Moldova, Poland, and Romania. It looks at how private property has been re-instituted in these countries through land reform. It seeks to understand how national governments, under different international institutions pressures, interfere with villagers' notions of property.

In her paper, Katy Fox analyzes the implementation of direct payments from the European Union (EU) in two villages in Romania. These are funds allocated to EU members as a part of the Common Agricultural Policy. All EU states must have a geographic database system designed especially for the administration and control of agricultural subsidies. This system makes use of orthophotographic maps of the territory in order to calculate the surface area claimed by fund applicants. The paper describes the great distance people must travel from their village in order to point out their plots on the aerial photographs to rather indifferent and unprofessional civil servants. The paper looks at how this policy of allocating funds is related to power differences and knowledge, which have made some people unable to benefit from it. Those people linked to local political elite as well as those with good "connections" in the district capital were better informed about the context and the implications of Direct Payments policy.

Carroll Patterson's paper focuses on the implementation of the USAID-sponsored decollectivization program in Moldova. This program was meant to dismantle the former collective farms and create commercial family farmers, but it did so by allowing farm managers to accumulate most farm assets. He also finds that the western blueprint for transforming land ownership in a former socialist country has failed. Instead of acting like commercial family farms, most rural Moldovans are locked into subsistence agriculture. The commodification of land and labor, through the USAID-sponsored plan, has created new forms of social differentiation.

Francis Harvey looks at the discrepancies between formal records of land ownership and informal land tenure in three regions in Poland. As in the Romanian case, Poland had to improve its land cadastre in order to access funds from the European Union. He employs Katherine Verdery's term of elasticity in order to describe the negotiations and frictions between land owners and those who attempt to impose the formal land cadastre. While the land cadastre gives the land a certain "legibility" for the state (as Scott 1998 has brilliantly pointed out), the actual land tenure is the outcome of hundreds of years of historical and social development (e.g. movements of population, wars, a certain social structure, etc.).

The paper of Caedmon Staddon and Stanislaw Grykień analyzes the relationship between villagers and their forest in two regions from two different postsocialist countries: Poland and Bulgaria. They emphasize the fact that villagers manifest different types of relationship to their forest. While Polish villagers

manifest a strong cultural and social attachment to their forest, Bulgarian villagers are less concerned with the cultural attachments and are more interested in the forest as a commodity. Bulgarian villagers rely more than their Polish peers on the forest for their livelihood. This study points out that different economic and social conditions lead to different attitudes toward the forest.

All papers look, directly or indirectly, at the penetration of neoliberal ideas about property at the village level. Market, value, state and (private) property represent the keywords of these ethnographic and sociological studies. Further studies need to investigate more deeply than this collection does into the direction of larger forces, ideologies, and practices shaping villagers lives in postsocialist countries.

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CONFUSION, SECRECY AND POWER: DIRECT PAYMENTS AND EUROPEAN INTEGRATION IN ROMANIA

KATY FOX^{*1}

This ethnographic article examines the first time “implementation” of the European Union’s Direct Payments policy in Romania, paying particular attention to what happened at the policy-village interface, and illustrating how power differentials, local knowledge production politics and ways of making agreements shape the way in which the policy plays out in significant ways. I apply recent theorising on the state and power to show the discontiguity at work in the Direct Payments policy. In some instances, a dispersed, but highly discontiguous form of power best describes the processes at work; in others, power is manifested through discourses that reify the state reproducing its verticality, its encompassment and reproducing its dislocation from people’s everyday experience. I focus on how policy implementation processes work, in practice, in messy, incomplete ways that are revealed differentially and unevenly to different subject positions within the social field of power. I show how, in practice, “institution-building” took place by way of negotiations between villagers and policy-implementers. Furthermore, I illustrate how the conflicts involved in “oversolicitation” gave differential access to a highly stratified village community. Thus, I show how the Direct Payments policy produces both dissonant and consonant effects in the policy-village interface.

Key words: European Union; Direct Payments; power; institutions.

INTRODUCTION

This article is based on my doctoral fieldwork (October 2006–January 2008) on the effects of European Union (EU) integration on people who had hitherto depended on animal husbandry for their livelihoods. I carried out qualitative, intensive anthropological research living in a sub-Carpathian area in Muntenia for a year – in two valleys I call Luceafăru and Zâmbetu² – but I also worked extensively

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¹ I would like to thank fellow postgraduate travellers and my supervisors at Aberdeen, as well as three anonymous reviewers for their thoughtful comments and suggestions that helped me to improve my analysis.

² All names of places and people used in this article are pseudonyms.

with policymakers both at the district capital and national levels in the Romanian Ministry of Agriculture and its subordinate agencies. Besides the Direct Payments (DP) policy, I was particularly interested in how EU regulations transformed and restructured markets and production of traditional produce in practice and how the institutions worked together with village communities.

In my research, power has been a central concept and usually replaces the concept of the “state” which, is, in policy contexts and in academic political science reified as a unitary entity separate from social life. While nation-states and politico-economic “beasts” such as the EU may deploy modernist technologies and aspirations of matching reality with their “grid”, as Scott (1998, 2005) would have it, when apprehended through anthropological fieldwork, the reifications used and propagated by institutions melt away into people building institutions through specific practices and discourses, and other people, perhaps, entangled in acts of resistance, compliance or circumvention. In other words, I attempt to show the incongruence between the shifting social relations in the field with the grid-like policy technologies that are based on linear models and do not take into account dynamic social systems (Fogel, King and Shanker, 2008). I follow Foucault (1980, 1991, see also Inda, 2005) in conceptualising power as dispersed and apparent in mundane everyday, not overtly political, practices. In this methodological take, the state more closely resembles an “assemblage” (Ong and Collier, 2005) of actors, practices and things where practices of compliance become enmeshed with practices of non-compliance. This approach can be traced to actor-network analysis (e.g. Latour, 2005, Mol and Law, 1994), which, sharing the ills of extreme post-structuralist analysis, often failed to render the spatialised and uneven nature of power relations and ‘state’ actions by fetishising the ‘relation’ and by flattening the differences at work between different types of actors into an unhelpful jargon of so-called “heterogeneous assemblages” or “networks”.³ While I use this approach as a methodological pointer, I doubt the usefulness of “assemblage” as an analytical term, as I fear it may both over- and underdetermine the analysis. Dunn (2008) has drawn attention to the fact that states produce discontinuous and variegated spaces, which resonates with my interlocutors’ experience that understands the Romanian state and the EU as spatial phenomenon which have their epicentre elsewhere, but which are interconnected in spaces that constitute each other (i.e. that are not autonomous entities). Gupta and Ferguson (2002) show how the very perceptions of verticality (“up there”) and encompassment are produced and made authoritative through routine bureaucratic practices.

³ I have some sympathies for Actor-Network approaches for some contexts and types of social science analysis, but did not find them very useful for my work. Thus, I do not see myself as a particularly fierce ‘opponent’ of Actor-Network analysis, but would like to draw attention to its unintended effects, in my argument here.

This article examines the first time implementation of DP, paying particular attention to what happened at the policy-village interface, and illustrating how power differentials, local knowledge production politics and ways of making agreements shape the way in which the policy plays out in significant ways. In the following argument I attempt to show the discontiguity at work in the DP policy as well as the way in which the state can be interpreted, in the social domain, like matter or energy in physics, within a paradigm of “wave-particle duality”: in some instances, a dispersed, but highly discontiguous form of power best describes the processes at work; in others, power is manifested through discourses that reify the state reproducing its verticality, its encompassment and reproducing its dislocation from people’s everyday experience.

THE DIRECT PAYMENTS (DP) POLICY

The 2003 reform of the European Union’s Common Agricultural Policy (CAP) introduced a new system of DP, known as the single area payment scheme, under which aid is no longer linked to production.⁴ In Romania, the system introduced from January 2007 (the starting date of Romania’s EU membership) was the Single Area Payment Scheme (SAPS), which is a simplified scheme that was adopted by the new member states (for a period of 3 years, with the possibility of a 2-year extension). It involves the payment of uniform amounts per eligible hectare of agricultural land, up to a national ceiling laid down in the Accession Agreements. The payments are managed by every member state by the use of the Integrated Administration and Control System (IACS). At the basis of IACS is the Land Parcel Identification System (LPIS), a geographic database designed especially for the administration and control of agricultural area-based subsidies, used in all EU member states. LPIS makes use of relatively detailed, 1: 10,000 orthophotographic maps of the territory plotted digitally within IACS in order to calculate the surface area claimed by Direct Payment applicants. These aerial photos (shot from planes) are digitally layered with numbered “physical blocks” used to create clusters and numerically identify people’s parcel surfaces, and their location in the territory.

In Romania, the DP are administered by the *Agentia de Plăți si Intervenție pentru Agricultură* (APIA), which has its headquarters in Bucharest, 42 district (*județene*) centres and 210 local centres, of which the centre in Draghina was one. People could apply for receiving the DP in the spring of 2007 for the first time. To this end they needed to identify their parcels on photocopied maps and bring a series

⁴ This reform is one recent evolution of major shifts from a productivist paradigm to a rural development paradigm that have been happening to the CAP since the 1980s. See Shucksmith *et al.*, 2005, Edwards 2003, Ackrill 2000, and Rupp 1999 for in-depth treatment of the workings of the CAP.

of documents relating to ownership and farm status to a local centre close to them. The sum per hectare (ha) allocated encompassed € 50 from the European Agricultural Guarantee Fund plus the sum of € 30 national complementary payments from the national budget, as the area I worked in was mountainous and classed as Less Favoured Area (LFA). Here, at the southern edge of the Carpathian mountains, every household owned on average 2 ha. Given the fragmented nature of the parcels, sometimes the minimum contiguous surface requirement for the DP of 1 ha not to be fragmented into more than three parcels (or 0.3 ha each) was not met. Nevertheless, a large part of the valley population applied for the DP in the spring, hoping to supplement their often meagre incomes and pensions with some money.

EXPERIENTIAL MOMENTS OF DP IN LUCEAFĂRU AND ZÂMBETU

In the area I was working in, “Europe” was personified in everyday talk as an honourable guest that had been rumoured to arrive for a long time, but that remained a stranger to people’s everyday work and concerns, in the sense that this guest arrived with complicated luggage that created lots of confusion. Even for a researcher armed with passionate curiosity for agricultural policy, it was difficult to find out about impacting EU policies from within the local context. The policy did not move unproblematically from its context of creation to the people it affects, as “implementation” was deeply entangled with the politics of knowledge dissemination in the villages. Policy knowledge was differentially accessible by people in different social and economic power, and there was a maddening tinge of secrecy about what would be considered, in other contexts, easily accessible information.

While attending a village council meeting in late November 2007, I found out by chance that the following year the minimum surface for the DP would be raised to 5 ha, to encourage association. Practically, this meant that everyone apart from a handful of people was going to be excluded from the DP the following year, unless major bureaucratic procedures towards creating legal entities called associations were undertaken. Unfortunately, this had not yet become common knowledge or a widespread ambition by the time I left the field (beginning of 2008), but is indicative of the difficulty with which this knowledge was shared between villagers, and that the village was not a level playing field in which knowledge was shared “democratically”.

For the most part, the policies would materialise, suddenly, in the form of a summoning to the nearest APIA agency, detailing the papers (*acte*) that people had to bring in and the authenticating stamps (*stampile*) they had to bear. They would interfere with daily tasks attending to the household and the animals by having people queue for a long time in cold corridors, and, in the spring having to identify their parcels of land on the aerial maps. The policies would alternate these bursts of

momentary presence with long periods of absence, when “Europe” receded into experiential background and life went on as usual, with the chores characteristic of the times of day, according to season and varying with the weather, punctuated with the intermittent repose of orthodox holidays.

When conversation provided openings to talk about EU policy, I tended to ask people whether they “had been to Draghina too”, referring to APIA, but never using the actual name of the institution, as it mostly did not mean much to them. The most usual reply was to confirm that they had been called, and that they had waited for a long time to look at a map. If prompted about whether they had been treated well, a deference, which I commonly encountered in people that had little schooling, and were constructing themselves in relation to their unprestigious livelihood of animal husbandry, surfaced immediately: “why, of course, they were kind to us”. They would be pleased if the money came (“God may give”), but did not quite trust whether it would really happen. Early autumn, the projected date at which the money was supposed to materialise, seemed a bit too far off in the spring to be credible. Another commonly encountered reply would be, “well the government has not done anything for us ever since the revolution, so why would they do something for us now?”⁵

In the spring I accompanied shepherd-wife Lena (70 years old) who lived in a household with three generations, solely living off the animal husbandry, to a meadow where they keep their twelve cattle. They owned a relatively high number of animals as far as households in my fieldwork area went (over 100 sheep, cattle and some pigs, horses, and birds). This piece of marshy land featured a muddy pond serving to water the animals, a shelter for the cows and a few haystacks. On this occasion, she told me how enchanted they were when the money for the animals had come the previous autumn [2006]. They had normally been forgotten after the revolution, and I could sense a heavy helplessness in relation to the “thieves” occupying political office in Romania, often voiced with the phrase “What can we do? That’s how it is” (*ce să facem? asta e*). This, as I have argued elsewhere (Fox, 2009), is not to be read simply as resignation or political apathy, but as a recognition that life has to be lived, a livelihood has to be made, the animals have to be fed, regardless of the shifts in political frameworks. That time Lena weaved into her conversation with me the following recurrent claim about the past: “in Ceausescu’s time it was better because we got money for our merchandise, for the wool, for the milk, for the meat. We could also exchange things for one another. What we did was worth something.” She was also talking about her neighbour, who is about 80, and quite ill. This woman had been crying for joy when she got some money for firewood, and Lena’s household had gotten some too.⁶ “We help her out with cheese, because she cannot keep animals anymore. She

⁵ It is highly questionable whether what is popularly called “the revolution” actually was one but this shall not concern us here.

⁶ The Mayoralties give money to low-income households towards the firewood, which is the only source of heating in both valleys I was working in. Gas ducts have never reached here.

gives us some of her land in return.” One cow had died recently, and, full of the kind of emotionality related to the difficulty of making a living, she told me that they had taken a new cow for 20 million (€ 600), and had sold one for 7 (€ 210) million. This comment indicated that institutional trust had not been consolidated from the point of view of the “peasant” populations that felt they had been excluded from the positive effects of the transformations that happened after 1990.⁷

Lena’s narrative moving from the animal subsidies to other kinds of incomes illustrates that the policy was not thought of in terms of its rationale, or wider implications within a policy framework. Its effect in the form of money to be put to use within the household, however, was definitely felt. It had to be put towards the food, the children, the electricity, and the church, in the immediate term. The recognition runs home the fact that these people are unlike farmers running a capital-intensive business but part of the most vulnerable part of the population in rural Romania, classified by elites and self-identifying as “peasants”, not without traces of stigmatised identity. With the dismantling of the socialist state infrastructure and industry, these rural populations resorted to making livelihoods from within their households (agriculture and animal husbandry) after 1990 (von Hirschhausen, 1997, Stan, 2005). They used what resourcefulness they could muster to keep making a living in increasingly hostile conditions that offered little local alternatives even with the recent shimmering promise of EU funds.⁸ As Lena put it, her family’s way of making a livelihood was no longer valued in the same way as it was under communism. In their lives the space and circumstances to know about DP and the EU was not provided due to their position in a field of power that put them at a clear disadvantage, because of the entanglement of local power and knowledge politics as well as the lack of effort and possibility, on the part of people working in the newly established institutions, in making populations more knowledgeable.

INTERFACE APIA-VILLAGERS

My concerns about opening the black box of “implementation” meant that I had to work on different levels (e.g. local, regional, national, supranational, etc.), which may have been native categories, but which I did not consider powerful analytic devices. This led me not just to “study up” (Nader, 1972), but study *through*, “tracing the ways in which power creates webs and relations between actors, institutions and discourses across space and time” (Shore and Wright, 1997: 14). This entailed tracing the policy connections between different and sometimes unshared or very unevenly shared moral worlds. Shore and Wright (1997) importantly emphasise

⁷ I do not wish to use the term ‘transition’ because of its teleological implications (see Hann, 2002).

⁸ Migration to Western European countries is still the most viable “alternative” (see Hartman, 2007, Anghel, 2008).

that the equality given to relatively disenfranchised voices is not just rhetorical in this analytical framework, but part of indexing a contested political space.

The state of the local APIA centre provided a magnificent illustration of what “institution-building” means in practice. It was situated next to the ruined remnants of recent socialist history, within a landscape of largely disused buildings of the former socialist cooperative of Draghina, the last formerly collectivised outpost before the mountains. The large parking space at the back was home to a pack of dogs that seemed to be forever spawning friendly, clumsy puppies with crooked ears. The building had recently been bought up by the Ministry of Agriculture, and was little more than bare, concrete masonry and carpentry. It lacked central heating, which was a major concern, as having to work in winter anoraks certainly did not ease the difficult work conditions. There were some wood ovens, but they were old and smoky, and the building just had one brick wall, the rest being concrete. Despite APIA’s dealings in paper documents, I saw very little provision for storage space. Thus, in the director’s office, for instance, a multitude of rolled maps leaned against walls, and piles of documents were living in corners, on chairs, covered in specks of the white fine-grained dust that had sedimented as a consequence of ongoing refurbishing works. Voices were strangely amplified because of the state of the building and bounced off the bare walls.⁹

Apart from the director, six people were working there, most recruited locally, but only one of which had previous experience in “agriculture”. Each of them was in charge of two to three of the nine Mayoralities (*comune*) that the centre caters for.

Director Petrescu was a kind man in his late forties who had previously worked in the management of a large industrial bakery. He had decided to leave there, because, even though he liked the job, the pay was derisory, a reason commonly given in Romania for deciding to give up one’s work place. He stressed that he had taken the entrance exams to civil service (*funcționar public*) and had been commuting 50 km one-way, every day, from the district capital since the local APIA centre opened in spring 2006. He joked that he might just find himself a room at some point. Over coffee, he openly spoke to me about the practical difficulties of working in a half-baked office space and the bugs in the software that got in the way of dealing with huge amounts of data. These difficulties were sharpened by the novelty of the process of land parcel identification. He said that “identification” was far from being a straightforward process, as a lot of people did not know how to interpret the orthophotographic maps. They were not used to

⁹ I did also work with central and district level representations of ministerial agencies. These were generally more heavily tinged with politics. The scandals rippling through the Ministry of Agriculture’s various agencies throughout my fieldwork period impacted on my access to political institutions, where employees were reluctant to speak too much about the problems that beleaguered their institutions, as they tended to feel a partial stigma about Romania’s perceived lack of ‘readiness’ to be a full EU member state, and were afraid of being ‘shamed’ in the rest of Europe.

seeing their land from a bird's eye perspective, they were often elderly poor with bad, uncorrected eyesight. The maps themselves were also problematic as far as the mountains were concerned as a lot of land had been covered in shrubs and the inclination of the ground distorted the shape of the parcel so that its boundaries were hard to identify. Finally, the people had been sent a black and white photocopy of the physical block their land and not a lot of awareness-raising had been undertaken at the local level to sensitise people to the importance of getting the identification process right, in order not to jeopardise the receipt of the DP.

When I spoke to Petrescu in autumn 2007, they were still processing the applications with a delay significant enough to make the national media reports on agriculture, usually an underrepresented issue in mass media. He explained to me that after the data processing, they would confront the "physical block" with the surface declared by the applicant. If there were discrepancies, the dossier would be checked, and in the last instance, the "farmer" would be called to resolve the problem. That way, he added, one would see who had lied, and we briefly discussed whether this was something intentional, which he did not assume. He deplored that they had an extremely busy work schedule at the moment with all the verifications, and all the things going wrong, but hoped that, with enough diligence and work, one could resolve all the problems and that it would sort itself out. However, I also sensed that, in the relationships between the employees and the "peasants", the latter were cast as inadequate, which did not help to establish a good relationship from the outset.

I also asked about the problem of informal renting of land (*arenda*). This is a common practice in the area I was working in and relates to how the DP are supposed to be for the *user* of the land, *not* the owner. Absentee owners or old people give the land with spoken agreement to those who want to work it in return for animal produce (milk, cheese, meat), a small amount of yearly rent, or, more rarely, both. While Petrescu recognised this as being a widespread practice, he referred, understandably, to the legislation and said that people who wished to rent land and get the DP for it needed to go through the official procedures of procuring a series of documents. He conceded that people were not used to these kinds of officialities, and that owners were not necessarily keen on forfeiting the DP. The visible proof for this was that no one, with the exception of a few Mayoralities had come forward to get the common meadows (*izlazuri, pajiști*) into the database for the DP. Officialising agreements and fixing relationships in legal documents made villagers uneasy as they had relied to a great extent on informal, local arrangements to make livelihoods both during socialism and afterwards. Furthermore, people were unaware of the implications of the recently formed Luceafaran sheep association on DP allocation and a lot of tension emerged in its wake as a direct consequence of power differentials within the village.

EU conditionality surrounding DP was not enforced in Romania in 2007. Petrescu knew about the ‘good agricultural and environmental conditions’ (GAEC), that he referred to as the “European system”, but said that so far this measure was not being put into practice, because there was no institutional capacity to do controls and impose sanctions.¹⁰ Sikor (2005) notes similarly that in the Czech Republic, these conditions are not monitored, and result in land slides and land remaining fallow. In fact, the CEE states are required to fulfil only part of these requirements, full “cross-compliance” applies only to Western European farms. Villagers’ suspicions about whether the materialising of the DP was “real” also became related, in everyday talk, to the idea that “Europe does not give money for nothing”, as I will show below. However, as Petrescu told me, in the future, this kind of control was definitely part of the plan, not least because of the manifold environmental problems that were already becoming evident. Linking this large issue to the current situation of the young institution, he continued saying the following: “my colleagues are all from the area, and they know the people. Furthermore, we learn something new every day, and we hope that it will be good.” We hope that it will be good, he repeated, thoughtful and earnest.

On talking to some of the staff, I discovered that they were not allowed, for the parcel identification phase, to work with the people where they were from, because it could result in conflicts of interest. Thus, one of the distancing procedures of APIA consisted in not using the people who might know the land best to help the people identify the parcels on the map. This may have helped to avoid conflicts of interest, but eventually precipitated other problems of misidentification that ended in cases of sanctions and non-payment of the DP. APIA staff had to show patience with the people coming to identify their parcels, but was unhappy about the ways in which the villagers were not used to writing, and adopted patterns of speaking about “them” that partially replicated metropolitan policymakers’ haughty attitudes towards “peasants”. Their idea on the villagers’ oft-mentioned take on state abandonment was interpreted in the way that rejected the paternalist model of the socialist state in conversation, and that largely put the responsibility on the villagers to change accordingly. They were, in the policy-making gaze, inadequate subjects that had not internalised the rules of liberal state institutions.

APIA TROUBLES: OVER-SOLICITATION AND MIS-IDENTIFICATION

My friend Mădălina came by one day in November as she had been called by the neighbouring local council in order to “sort out her land” (*a rezolva cu*

¹⁰ GAEC sets down conditions of use of sloping terrain, avoidance of overgrazing and care given to how and where trees are cut down.

pământul). She had news that in Zâmbetu over 400 people had been called, in Luceafăru, around 200, and in the neighbouring, much smaller Mayoralty, about 60. Mădălina was at a loss to explain how this had happened, and just incredulously shook her head, mumbling that this was impossible. “It is clear that mistakes happen in every institution, but on this massive scale? The APIA people cannot have been trained properly, they are incompetent, and you know how it is, the public servants are usually not reprimanded for their incompetence, the people are.” Mădălina ended up not getting the DP because she had misidentified her parcels on the map. Generally, what had happened was that more land had been claimed than was available, due to a combination of the lack of experience with identifying parcels on the orthophotographic maps, the mountainous terrain that distorted the representation on the maps, on the one hand, as well as insufficient awareness-raising and knowledge ‘transfer’ by the respective institutions with the villagers concerned, and software and processing problems within APIA, on the other.

Through owning three to four hectares land one could, in theory, obtain a further full month’s salary with the DP. So people did queue for hours, coming back the next day, if necessary. “It is just like in communism,” I was often told, with that kind of joking tinge accompanied by a clenching of the teeth. During the wait in the narrow corridor, some voices were heard that said that the state had definitely messed this up, and that Brussels was right to threaten sanctions. “We” needed to do it properly, and this had not happened. After all, it was agreed, this was Romania; things did not work”. “Brussels” had indeed threatened Romania with the so-called safeguard clause (*clauza de salvagardare*), a legal stipulation that allows the European Commission to unilaterally suspend the funds in the case of non-fulfilment of the requirements of, for instance, good bureaucratic functioning, etc. No European country had as yet received this sanction. At the time of that gathering, the deadline had been set on the 27th November 2007, but it was to be postponed, step by step, by several weeks, so the authorities would have time to deal with the issue of over-solicitation and mis-identification. In the end, the penalty was not imposed, but Brussels suggested further monitoring of this less equal EU member state that is Romania.

During the next few days, in Luceafăru, the Mayoralty became a gathering place, assembling people with DP grievances. Doamna Ioniță, the agricultural engineer, who had already a lot of chores, and who found a grumbling crowd in front of her office first thing in the morning, resorted to skipping lunch and extending her “contact hours” from four to ten hours.¹¹ Given that she also has cows to attend to, her increasing exhaustion became visible in her features and demeanour, and her initial optimism at quickly resolving the situation combined

¹¹ ‘Doamna Ioniță’ means Mrs Ioniță. I use this address if it corresponds to my way of addressing the person in the field.

with a friendly embracing of each villager into her cramped workspace, was dissolved into a quieter, darker mood that wished on the end of this journey.

Doamna Ioniță's knowledge of the Luceafaran territory was impeccable, and in some cases she conformed to what people had declared at APIA to avoid inflating existing problems for the people. But if cases were unclear, she asked that the owner come him/herself to the Mayoralty to clear up the issues. This was mostly the case with issues relating to inheritance and family strife. One of the recurring comments made by Doamna Ioniță while typing away was that "we do not merit [the subsidies]¹², because we do not work the land as we should" (*nu merităm [subvențiile], nu lucrăm pământul cum trebuie*). This related to a number of instances where the land was known to be unworked (*a rămas nelucrat* or *nemuncit*), for demographic and economic reasons: the young people were temporarily or permanently migrants in Europe, and were increasingly reluctant to work land and husband animals as their main occupation, because their – compared with the older generation, greater – wants could not be satisfied by this livelihood. There are estimations that about 50% of agricultural land remain unworked in Romania, due to a chaotic restitution policy (Cartwright, 2000a, 2000b, 2003) that makes for high fragmentation, and migration patterns. The old people did not have the strength anymore to work the land or it was too far away from the village to be of any use.

People would not usually admit themselves that they did not work their land properly (although with some it was common knowledge that this was the case), due to the connotations that an admission of this kind would entail. Indeed, people evaluated others' worth in terms of being "good householders" (*a fi (bun) gospodar*) which was connecting to the practices of working one's land properly, i.e. not letting it lie fallow, not allowing it to become taken over by the forest (*a fi împădurit*).¹³ Whenever one passed by someone's unworked land or orchard, it was frequently commented upon how it was a shame that so-and-so left this piece of land unworked, and it implied that the person did not care.

CONCLUSIONS

Local knowledge production politics, related to power differences, disseminated the policy in unequal ways, and made some people unable to fully benefit from the policy. Those people close to the village council and local political elites, as well as those with "connections" in the district capital were much better informed about the context of the DP and its implications. While full DP

¹² Though strictly speaking they were not 'subsidies' but decoupled payments, this was the term used by most villagers.

¹³ Evaluations expressing the contrary of 'being a good householder' were also recurrent: *un om de nimic* is literally a 'person of nothing', of no worth; and *nevleg*, a halfwit.

conditionality remained unfulfilled, the statements of Doamna Ioniță and others indicate that people did have a strong sense of what is appropriate to do with the land, even though this aspiration remains unfulfilled at times for complicated reasons. Local ways of informal agreements regarding land rent and distrust in, as well as lack of experience with bureaucratic procedures interfered with the way in which the DP would benefit the most destitute village households.

The social environment in Luceafăru and Zâmbetu is filled, from the outset, with people's lives, their work, their comments, their evaluations, and their moral stance on the community within time. This produces both dissonant and consonant effects in what I have called here the policy-village interface. I have shown through my ethnography how the concept of DP operates in practice, and how policy implementation processes in messy, incomplete ways that are revealed differentially and unevenly to different subject positions within the social field of power. In the mountainous terrain, the DP technology of orthophotographic maps did not work very well and had major consequences for the applicants as they were found to have over-solicited. In discourse, the state was, at times, reified which ran home the point about the dislocations between some of the more destitute households' position of power in relation to state institutions. Within the young Draghina APIA local centre, intentions may have been good to establish good relationships with villagers, but these sometimes transformed into highly unequal relationships that reflected power differences that exist at the local level, and that are embedded within agricultural policy. Thus, the policy presumption that spaces are autonomous enabled the power of topography successfully to conceal the topography of power (Gupta and Ferguson, 1997: 35).

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THE PARADOX OF MARKET REFORM: *PĂMÂNT* AND THE VICIOUS CIRCLE IN THE REPUBLIC OF MOLDOVA

CARROLL PATTERSON*

This article asks why free market agricultural reforms in the Republic of Moldova (RM) have led to an explosion of subsistence production. The immediate answer is found in the implementation of the USAID-sponsored “*Pământ*” program, as the systematic fragmentation of collective farm land and assets were the program’s immediate results. Yet it is not clear if the dynamics of the intervention in particular caused the fragmentation, or if there is something about markets more generally that involves the destruction of the previous order. This article finds that *Pământ* was indeed decisive, because it unleashed a *bellum omnium contra omnes* among the program’s recipients which in turn led to the involution of Moldovan collective farming. Yet the subsequent increase in the number of rural Moldovans who engage the transnational labour market continues to lock the Moldovan rural sector into a trajectory of underdevelopment. In other words, the Moldovan case is an example of how Western technical assistance has combined with the destructive aspects of the free market to subordinate postsocialist agriculture in the global economy.

Key words: Land reform, decollectivization, subsistence production, western assistance, Moldova.

INTRODUCTION

Why have so many collective farm workers across the postsocialist world withdrawn to subsistence production?¹ It has been almost 20 years since socialism collapsed, but today many postsocialist farmers find themselves clinging to basic staple production, pre-industrial farm technology and barter exchange in life or death struggles to meet their basic needs. What is particularly striking is that the postsocialist countries most mired in subsistence production and its corresponding loss

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¹ I use the term collective farms to refer to legacy large farms created under socialism and can include both collective and state farms, as well as their re-registered (but not reorganized) private successors such as joint stock companies. Subsistence farmers are defined as those who market less than 50% of their agricultural output, but can also receive cash from remittances sent from urban areas and abroad. Space constraints prevent a more extended discussion.

of agricultural output also tend to be those that engage market reform the most – so much so that Liefert and Swinnen (2002:2) unsympathetically postulate “the absence of a decline in output in a country more likely reflects failure to reform than reform success.” Yet what Liefert and Swinnen call “reform success” is now referred to as a “vicious circle” in which owners of fragmented land barely meet their material needs but seldom risk the loss of these guarantees to pursue potentially higher gains elsewhere (Abele and Frohberg, 2003). Although the question of how to break the vicious circle is and will become increasingly relevant, this article poses its formulation as a paradox. In other words, why do market reforms undermine the ability of postsocialist farmers to generate capital and produce for the market?

The paths to the vicious circle appear to be many. Subsistence production has exploded in Eastern Europe and the Baltics, where a restitution model that sought to restore land ownership rights to precollectivized owners was the dominate mode of reform (Hann & the “Property Relations” Group 2003; Carthwright, 2001). Extreme land fragmentation and subsistence production has also been a characteristic in Armenia and Georgia agriculture (Kegel, 2003), where ethnic conflict and state collapse produced “spontaneous” decollectivization. What followers of both approaches have in common has been an antagonistic view of the collectivized past within a few years of their independence. By contrast, this article is concerned with a less explored path to the vicious circle: decollectivization models designed and implemented through Western technical assistance (TA) in postsocialist successors states that did not take immediate decollectivization steps upon independence.

In many postsocialist states, Western donors have recommend that the collective farm be broken down into smaller units so that self-interested entrepreneurs can break free of group ties and establish what are believed to be more efficient family farms. Indeed, donors frequently reference a wealth of empirical evidence that suggests that the family farm is the most efficient and egalitarian organizational form found in both the developed and developing world (Johnson and Ruttan, 1994; Berry and Cline, 1979). Two types of donor TA projects flow out of this thinking. First, regulatory projects involve the creation of a legal framework that guarantees alienable private-property rights of ownership and are supported by land-titling and cadastre-reform initiatives (Rolfes, 1998). Second, decollectivization projects involve efforts to reorganize large farms into individual units (Bezemer, 2002). However, donors assumed that these units would specialize in commodity crop production, not subsistence production (Lerman *et al.*, 2004).

The US-funded Moldovan National Land Program, or “*Pământ*,” is an interesting illustration of donor-led market reform. From 1997 to 2001, *Pământ*’s two implementing organizations – the Center for Private Business Reform (CPBR) and a team (BaH team, hereafter) made up of representatives from BozeallenHamilton (BaH) and the Rural Development Institute (RDI) – reorganized the Moldovan collective farm sector by creating some 87 thousand

registered small to medium sized farms and by issuing land titles to another 400 thousand individual farmers.² Although World Bank observers herald the project as a “real break through” (Csaki and Lerman, 2002), the majority of *Pământ*’s recipients do not act like market entrepreneurs. Instead, many rural Moldovans now use hand tools to perform work on household plots and peasant farms that average 0.65 ha (Cadastral Agency of the RM 2004). A subsequent study found that 83% of Moldovan agricultural “sellers” actually market less than 42% of their output, and are outnumbered by land owners who are “nonsellers,” a third of whom report no commercial sales at all (Lerman, 2004).

Pământ’s recipients are now locked in the vicious circle found throughout the postsocialist rural landscape. They have, however, exercised their political voice and elected a Communist Party (the PCRM) whose early campaign promises revolved around state-led (as opposed to market-led) land consolidation (PCRM, 2001). PCRM head and now RM President Voronin even described *Pământ* as “destructive” and “part of a plot to turn the Republic of Moldova into a province of Romania” (Gorton and White, 2003: 306). In response, each one of *Pământ*’s TA implementers blames the other. CPBR representatives explain the problem in terms of the massive typographical and survey mistakes made by the BaH Team during the land titling process, mistakes that allegedly prevented market-led land consolidation from happening much faster.³ Conversely, the BaH team charges that CPBR’s decollectivization model gave disproportionate amounts of control to local land and property allocation commissioners,⁴ who then deliberately sought to fragment the workforce and consolidate assets under their control.⁵ To be sure, the charges of each subcontractor echo louder criticisms levelled by observers of postsocialist agricultural reform made elsewhere regarding the need for more market reform (Lerman *et al.*, 2004) and the ability of rural elites to undermine that reform (Barnes, 2006), respectively. Nevertheless, I would like to focus the discussion on the impact of their intervention as they played the defining role in *Pământ*’s implementation.

As critics of TA often point out, the claims and counterclaims of implementers reveal little in and of themselves about why a project “failed,” but are in fact more indicative of incentive problems inherent in the subcontracting

² See Ba&H 2000 and EWMI/CPBR 2000a. The team reorganized 985 of Moldova’s 1004 collective farms, issued over 900 thousand land titles, registered over 87 thousand farms, and increased the amount of private farm land held by individuals from 3.2% to 47%. *Pământ*’s implementers also, within less than a year, settled over 1 billion Moldovan lei in debt for 933 collective farms, transferred 818 million lei in social assets to local government, offset another 624 million lei in debt with other farm assets, and wrote off an additional 35 million. Finally, “hundreds of laws/ regulations were written, amended, changed or struck” to speed up *Pământ*’s completion (EWMI/CPBR 2000a: 8). These figures do not include Gagauzia and Transnistria.

³ Interview with Director of CPBR on 8 August, 2001.

⁴ For a detailed description of *Pământ*’s methodology, see Muravski, 1996.

⁵ Interview with member of BaH team on 13 August, 2005.

system preferred by the majority of donor agencies.⁶ To the extent incentive problems exist, we have good reason to question the efficacy of foreign TA under contract. Yet this approach does little to explain the relationship between markets and subsistence production. At best, the contractual imperative approach can only account for the rise of subsistence farming in terms of unintended consequences of well-intentioned interventions.

On the other hand, markets have a long pedigree as forces of destruction, both creative and otherwise, and in particular the so-called “prisoner’s dilemma” model teaches us that releasing unchecked, self-interested entrepreneurs can lead to the breakdown of social order (Hirschman, 1982). In fact, Marxist scholars in Latin American frequently argue that markets are more likely to lock individual producers into “low-level equilibrium traps” than contribute to economic growth (Goodman and Redclift, 1981; Janvry, 1981). In the postsocialist context, many scholars prefer Polanyi’s state-centric approach to Marxist class analysis, and echo the Polanyian dictum that there is no market road to a market economy (Woodruff, 2000; Bryant and Mokrycki, 1994). Instead, effective market reform revolves around the decisions and capacities of the state to both facilitate the flows of the free market and protect society from those flows (Polanyi, 2001). Polanyi’s approach has framed Burawoy’s “economic involution” argument that the expansion of neoliberal market reform in Russia comes at the expense of the forces of production of the previous order, which in turn forces some workers to turn away from the market and towards economic activity within the home (1996; 2001; Burawoy *et al.*, 2000). Yet as promising as the involutionary approach is, it has not explained why some postsocialist governments implemented neoliberal reforms but still managed to avoid the vicious circle. For example, neoliberalism guided Moscow’s agricultural policy throughout the 1990s (Wegren, 2000), yet collective farms survived and have been recently referred to by the *New York Times* (August 8, 2008) as “hot capitalist property.”

This brief discussion leads us to ask whether an examination of the incentives driving *Pământ*’s implementers adequately explain the RM’s descent into the vicious circle, or if involution would have occurred regardless of who was driving the implementation. My answer is that while state oversight does determine whether or not involution will occur, it would be a mistake to assume that foreign TA projects are simply “technical.” Instead, TA actors oftentimes assume state functions *in place of state actors*. The result is a qualitatively different type of market reform project

⁶ For example, Cooley and Ron (2002) argue that TA subcontractors have very real incentives to misreport their results and pursue contracts they do not necessarily feel are viable, because doing so increases the likelihood that their contractual relationship continues. Moreover, TA projects that require the joint efforts of many subcontractors are unlikely to induce cooperation between them, because doing so ignores that fact that the next round of post-implementation projects places subcontractors at opposing ends.

driven by entirely different imperatives. And yet the key difference is not that subcontractors respond to perverse incentives that undermine contractual goals, but that these actors are bound by contractual imperatives expressed by donors who are unaccountable to recipients. As such, TA actors who assume state functions are able to move market reforms in ways their local and national counterparts cannot, but do not necessarily do so with their recipients' interests in mind.

In what follows, I argue that upon Moldovan independence, the onrush of market forces did not lead to the destruction of the collective farm. Rather, farm breakdown only occurred after *Pământ*'s foreign implementers assumed control of several state functions. *Pământ*'s implementers were then able to unleash (albeit unintentionally) a *bellum omnium contra omnes* (war of all against all) within the collective farm sector. As a result, relations among the state, society and land were fundamentally changed in a way which explains the RM's descent into the vicious circle of subsistence production. Yet even as the PCRM now seeks to reverse the reforms, I conclude that subsistence production will be sustained by their interaction with the global market.

THE BIRTH OF *PĂMÂNT*

Immediately after its independence, the RM liberalized consumer prices and trade, adopted the budgetary and fiscal-tightening policies advocated by the IMF, and privatized the bulk of Moldovan industry (IMF, 1995). Not surprisingly, Moldovan agriculture was thrown into immediate crisis due to increases in energy prices, an extreme price scissors and hyperinflation. By 1996, Moldovan Gross Agricultural Output (GAO) was only 56% of its 1990 level (Lerman *et al.*, 1998:21). And yet these shocks did not lead to farm breakdown. Quite the contrary, the collective farm became a safe-haven for the rational risk aversion that arises during times of great uncertainty. To wit, Moldovan collective farm workers were granted the right to withdraw as early as 1991,⁷ but by 1997, less than 10% had done so and no collective farm had been entirely dismantled (Gorton, 2001:10). The reasons why are complex, varied and multi-levelled, but cannot be explored here. Suffice it to say that neither the majority of collective farm members nor the bulk of individual farmers had an interest in decollectivization,⁸ primarily because the collective farm assumed social reproduction functions that went beyond GAO.

External factors and bad policy decisions would create the conditions for change. The RM's early financial crises forced the Government of Moldova (GOM)

⁷ Land ownership was based upon number of years worked on the collective farm and not on land ownership prior to collectivization. This right was suspended in November 1994 due to amendments to the land code, but resumed in January 1996.

⁸ See public opinion surveys conducted by Crowther (1995) and CISR (1997).

to accrue a number of multi-lateral loans, which by 1997 had reached 55.8% of GDP (World Bank, 2008). As such, multi-lateral lenders and Western donors were able to assume great authority over Moldovan economic policy, and the World Bank in particular increasingly demanded that the GOM enact a mass decollectivization program in exchange for further loans (World Bank, 1998).⁹ Crucially, Western donors also aligned with key members of the GOM who sought to erase the RM's Soviet past and undermine political opponents whose constituencies were rooted in the agro-industrial complex (Gorton and White, 2003: 306–7).

Yet how decollectivization was to occur was still unresolved. The European Technical Aid to the Commonwealth of Independent States (TACIS) organization had already been experimenting with a model in which individual producers would be supported by jointly-owned and operated service cooperatives (NOMISMA, 2000). Members of RDI advocated a neopopulist model in which the GOM would override the interests of farm directors and grant members alienable rights to tradable plots of land (Prosterman and Mitchell, 1995). However, neither model seemed likely to achieve the rapid results Western donors and multi-lateral lenders demanded. TACIS workers quickly realized there was no template solution to the problem of cooperative bargaining. The project's land titling format was also connected to the World Bank's "First Cadastre Project," an initiative that required 25 years to complete (Cashin and McGrath, 2006: 68). RDI's approach suffered from the same drawbacks of the Nizhniy Novgorod model that failed in Russia.¹⁰ There, the model was designed to keep farm directors out of the decision-making process and thus they had an incentive to undermine the reforms (Barnes, 2006).

CPBR's "Leader Entrepreneur" (LE) model was an approach that overcame the problems of the others. First, the model rested upon the notion of a "natural leader" who would be chosen by the community to manage agricultural activities on a purely commercial basis. Members were given the option to farm individually or allow the leader to manage their assets through direct buy-out or lease agreements.¹¹ Behind this choice-based discourse, the model incorporated the interests of rural elites by legitimating their continued dominance under the new heading of "entrepreneur." Second, CPBR, in conjunction with BaH, promoted a much faster land titling system that bypassed several of the previously-established procedures and shifted control over the registration process from the national to the local level (Lerman *et al.*, 1998: 30–1). Third, CPBR employed or subcontracted

⁹ Chapter Four of my *in progress* dissertation provides more details on the development of the World Bank's position on Moldovan decollectivization.

¹⁰ RDI played a role in the design of the Nizhniy model. See Prosterman and Hanstad (1993) for Russia and Prosterman and Mitchell (1995) for Moldova. The main difference between the two models was that the latter explicitly advocated a fully-functioning land market while the former explicitly recommended against it.

¹¹ See CPBR Administrator's Manual (1997) for an in-depth explanation of the model.

several prominent officials as members of its government relations team, including former Prime Minister Valeriu Moravski, to push legislation in Parliament.¹² After a number of pilot projects were tested in 1997, the LE model formed the basis of the *Pământ* program and launched in March 1998, immediately after the anti-Communist “Alliance for Democracy and Reform” formed a majority in Parliament.

CHANGES TO VILLAGE RELATIONS

From 1998–2000, the *Pământ* team would move incredibly fast and break up 985 collective farm enterprises (EWMI/CPBR 2000a). Such impressive gains were only made with the substantial support of rural elites, and indeed both groups worked hand in hand to promote *Pământ* and explain its implementation procedure.¹³ Thus, it is no surprise that farm directors tended to dominate the farm restructuring process (Dupouy, 2000). By 2001, nearly every farm director had been selected by his/her community as one of many new entrepreneurs.¹⁴

Instead of replacing farm directors, *Pământ* challenged their hegemonic rule by creating new competitors in the form of more LE positions. What is questionable is to what extent we can assume that these competitors were equipped with a relatively equal supply of human, social and economic capital. One CPBR implementer confessed that, in reality, his organization would typically establish only two viable enterprises, “viable” because the competing organizations were not expected to last very long due to undercapitalization. When I asked why CPBR would deliberately allow people to establish nonviable enterprises, he responded that: “It was necessary for people to understand for themselves how the survival of the fittest operates.”¹⁵ Put differently, the choices *Pământ* granted its recipients were expected to somehow legitimize the new types of inequalities created by markets. If members decided to join a farm enterprise based upon criteria they thought were important, but subsequently lost out according to rules which they already consented, it was assumed that they would accept their new subordination more willingly. Thus, farm directors could reemerge as legitimate leaders if baptized in the failures of their competitors.

¹² Interview with Director of CPBR on 8 August 2001.

¹³ An unpublished World Bank study (Dudwick, 1998) found that some villages were led to believe that they were voting to keep the collective, a choice they wanted but were not allowed under *Pământ*’s methodology.

¹⁴ See Figure 3.2 of EWMI/CPBR (2000a). Figure 3.2 suggests that not all leaders were the former directors of the collective farms (only 16.5%), but when one considers that CPBR created a national average of 6.5 farms per village (p. 49), it reveals that nearly 100% of the farm director population successfully made the transition into LE positions.

¹⁵ Interview with member of CPBR on July 1, 2001.

It would be easy to cast Moldovan farm directors as the inhibitors of reform or the abusers of power,¹⁶ but doing so not only ignores the important role they play in rural development but also ignores how their relationship to the workforce changed as the result of *Pământ* as implementers freed land lease prices and farm wages.¹⁷ Previously, human labour, alienated and subordinated as it was, was not commodified and still had a right to be put to use despite varying degrees of “efficiency.” *Pământ* replaced such obligations with market relations involving the buying and selling of land and labour power in the context of a limited number of leader positions relative to an oversupply of labourers and land holders. Leaders were thus in a position to drive down the value of lease agreements and offer contracts to only the best and most loyal workers for lower compensation and under less favourable terms. To do any less would make them vulnerable to their competitors. Indeed, it was their duty to reject less desirable simply on the grounds of their incapacity to further the profit-driven goals of the new organization. The new bitter reality for former farm members was not that the old hierarchy persisted, but that the value of worker power could now approach zero.

CHANGES TO RELATIONS WITH THE LAND: THE FRAGMENTED UNDERCLASS

Pământ’s implementers made a number of administrative mistakes that created the conditions for the emergence of a new underclass of farmers who occupied severely fragmented pieces of land. There were two general types. First, CPBR’s ability to expand its mandate to 985 farms placed considerable strain on the BaH team by essentially doubling their surveying and land titling workload. The BaH team’s solution was to replace their own surveying activities with older, historical maps derived from the Soviet era (BaH, 2000:19). Due in part to the natural ebb and flow of rivers, as well as changes to roads and land use, many of the historical maps were inaccurate.¹⁸ Such discrepancies had large ramifications,

¹⁶ A number of farm directors refused to become a part of the restructuring process and encouraged their members to remain in the collective, but *Pământ*’s implementers responded. First, CPBR and the BaH team mobilized media outlets to pressure nonconforming farms. According to one BaH implementer, a list and pictures of farm directors who “stood in the way of the rights of the people” was published weekly in local and national newspapers and the names of offending directors or mayors were repeated daily during radio and television broadcasts. Second, CPBR at times called on high level officials from the Ministry of Privatization, or even on President Lucinschi himself, to replace the farm directors. Interview with BaH Team member on August, 2005 and with CPBR Director on August, 2001.

¹⁷ Crucial to this were the 1996 Law on Leasing and the 1997 Law on Normative Price of Land and Procedure for Sale and Purchase of Land. Together, the laws freed the prices of land and land leases. See Prosterman and Mitchell (1995) for a description of how prices were regulated prior to the changes.

¹⁸ See Verdery (1994) for an elaboration in the Romanian context.

because even a minor difference in the size of a field being privatized offsets the distribution of parcels in that entire field. Other types of administrative mistakes, such as misspelling or issuing titles to deceased individuals, also emerged. As a result, many new land owners found that they held titles that were not legally recognized.

A subsequent investigation into *Pământ*'s land ownership problems conducted by USAID estimated that 10% of the land titles issued by the BaH team had discrepancies (Barnes, 2002). The evaluator also estimated that "many, possibly even 90%, of the problems described to us in interviews and asserted in reports seem to relate to the allocation process that took place prior to surveying" (Ibid.: 2). This second type of problem involved behind the scenes abuses committed by the land and property commissions tasked with distributing the assets: allocating lower quality plots, creating plots that cannot be accessed without easements, and deliberately fragmenting recipients. Although such abuses would most likely occur under any circumstances, the extent to which they occurred is directly related to the speed of *Pământ*'s implementation. Officially, land commissions followed the 1992 Law on Decollectivization, which not only outlined egalitarian criteria for land distribution but further divided the land into orchard, vineyard and arable plots. The Law was deliberately "irrationally equal" in that such fragmentation was believed to discourage individual withdrawal but encourage individuals to find ways to combine their land shares with other members and pursue joint farming arrangements.¹⁹ Yet lawmakers assumed that individuals had the time to negotiate land consolidation agreements. Under *Pământ*, the Law was being applied by those who faced contractual imperatives to produce organizational change in a limited time frame, and thus they left little time for nonleaders to form agreements amongst themselves. Indeed, a consistent theme in practically all of my interviews involved the "breakdown of trust" within the village, not just in terms of the land and property grabs which almost invariably ensued, but also in terms of the utter frustration members felt by their inability to find other members whom they could follow or whom they could lead. All and all, independent farmers who chose not to join or were excluded from larger production organizations received a national average of 1.4 ha of land, but Moldovan researchers found that 75% of individual farmers received land shares that were divided into three to six parcels, and 10% reported receiving more than six parcels of land (ARA, 2000).

CHANGES TO STATE/SOCIETY RELATIONS

By 1999, the GOM discovered that they had endorsed a model that intensified their fiscal crisis. Although CBPR was to encourage the registration of

¹⁹ Interview with Minister of Agriculture on 17 October, 2005.

new farm entities, it had failed to include the *deregistration* of the previous collective entity in that process. The previous forms were devoid of owners and assets, but still held official recognition in the National Tax Office, which meant that they could also claim ownership to new assets and maintain the impression of financial accountability. There was now a space in which leaders could: 1) leave old private and state debt, as well as tax and social fund obligations, assigned to the collective farm and 2) claim new loans from commercial banks and assistance from the state for machinery and equipment without being held accountable. Furthermore, part of CPBR's earlier effort to simplify the registration process included the provision that commercial peasant farms less than 20 hectares did not have to register their assets with the tax office. This provided an additional incentive to rapidly accumulate machinery and equipment, as new assets could all legally disappear under the umbrella of the smaller peasant farm.²⁰ Not surprisingly, ghost farm debt quickly spiraled out of control.²¹ Upon discovery, the GOM immediately ordered that no collective farm could be restructured unless all of its debts were clear. As only one collective farm operated debt free, *Pământ* slowed to a standstill.

CPBR responded with legislation that gave the GOM an unprecedented mandate to bypass courts, community and the private sector, and found an immediate solution to the debt crisis through what became known as the Republican Commission (RC).²² The RC had the power to seize the majority of collective farm assets and apply them to national and then private debt.²³ In practice, the RC would begin by immediately seizing all cash on hand, followed by the farm's social and utility services (schools, hospitals, power grids, gas lines, etc.) and finally through the rapid auctioning of assets of mills and other processing equipment. What debt remained was then usually written off.²⁴ The GOM also

²⁰ See the modified 21 May, 1998 Law on Peasant Farms. Interview with consultant for CNFA on 23 July, 2001.

²¹ One study by the Ministry of Finance found that farm debt, unpaid taxes and nonpayments to the Social Fund increased by almost one quarter of its eight year total in the first six months of 1998 (ARA, 1999, p. 8–9). CPBR launched a study to find that the total debt of its participants – including borrowing from private creditors – had increased another quarter in the second half of 1998. See EWMI/CPBR (2000b).

²² See Decision on Republican Commission for the Resolution of Farm Debt, No. 767 issued on August 9, 1999 and Decision on State Support in Restructuring of Farms Undergoing Privatization, No. 854, issued on Sept. 17, 1999 for details. English translations are found in EWMI/CBPR (2000b).

²³ The Law on Critical Property stated that 69% of total farm assets could be applied to debt, consisting of all eligible cash on hand, cash expected from accounts receivables, portfolio share holdings of industrial assets, social and infrastructure assets (utilities, buildings and facilities), most livestock and certain types of machinery. Thirty-one percent of the remaining assets – some machinery and perennial crops – were left sacrosanct (EWMI/CPBR 2000b: 9).

²⁴ Interview with member of the Republican Commission on 23 June, 2001.

claimed the right to collect farm debts owed to the private sector. But rather than compensate private creditors with cash for the offset, the GOM offered tax rebates equivalent to the cash value (market) of the debt (EWMI/CPBR 2000b: 46–7).

The RC would proceed at blinding speed, liquidating an average 2.3 farms and settling an average 4.3 million lei (\$345,000) a day. Within less than a year, the RC had settled over 1 billion lei in debt for 933 collective farms, transferring 818 million lei social assets to local government, offsetting another 624 million lei in debt with other farm assets, and writing off an additional 35 million (Ibid.: 3). During this time, the ability of CPBR to overcome internal political pressure and external resistance was absolutely astonishing. In this, they held the staunch support of a few key Ministers within the Government and of Lucinschi himself to bypass democratic processes and expedite farm liquidation.²⁵ Underlying this support were IMF and World Bank conditionalities.²⁶

Anecdotal evidence I collected in two Moldovan villages suggests that the debt swap produced substantial bitterness in local communities.²⁷ Even though the GOM acquired the bulk of rural social service assets, they let many fall into disrepair. For example, several rural recreation centres, cafeterias and hospitals have been boarded up due to a lack of funding (and also to the asset stripping by some farm members who responded poorly to the loss of control over their social services). Moreover, private creditors had little interest in the tax rebate approach, as it required a thorough examination of their accounting records by the tax inspector. Their response was to write-off the debts owed to them, collect them informally, and/or raise their interest rates.²⁸

By the end of the *Pământ* program, implementers had unleashed a maelstrom of unchecked interest that eventually pulled the majority of rural Moldovans into its vortex. As farm directors were encouraged to seize control of collective farm assets, farm workers were unable to find alternative solutions and responded by stripping those assets. Legislative changes made to facilitate *Pământ*'s rapid implementation also allowed farm managers to escape their credit obligations, forcing a budgetary crisis which in turn forced the state to seize rural assets at the expense of production, social services and credit. Animosity was bred on all sides,

²⁵ According to CPBR (EWMI/CPBR 2000b), they were involved in the drafting and enacting of 172 normative and non-normative (letters of protest) acts to push the debt settling and farm restructuring past or around Parliament. The bulk of the supporting legislation was passed by Presidential Decree. See Table 4.4, p. 55.

²⁶ In their monthly Memorandum of Understandings (MOUs), both lending institutions made specific calls for the GOM to help *Pământ*'s implementers meet its quota, calling for farm debt liquidation of at least 50 farms a month via the Republican Commission. Interview with member of the RC on 23 June, 2001.

²⁷ I conducted 15 interviews in the village of Manta in the summer of 2001, followed by an additional 15 in October of 2005. I conducted 26 interviews in the village of Olanesti in November 2005.

²⁸ Interview with member of Agrionbank on 17 July, 2001.

and thus we should not be surprised by rural Moldovan support for an anti-reform Communist party. Yet it should be clear that these problems were more than just the result of a poorly-implemented TA project. Instead, the fact that *Pământ* was funded by a foreign donor headquartered elsewhere introduced an additional degree of separation that allowed implementers to proceed with decollectivization despite high social costs.

CONCLUSION: FROM TRANSITION TO UNDERDEVELOPMENT

This article has offered an explanation for the RM's own particular path of involution by identifying how a TA project produced a *bellum omnium contra omnes* in the countryside. However, this does not account for how the vicious circle is sustained over time. Although donors, alongside the GOM, now offer competing models to break the vicious circle, rural outmigration will most likely undermine these attempts.²⁹ Recent studies reveal that rural outmigration began to rise by the end of *Pământ*'s implementation, and has dramatically increased since (CBS-AXA, 2005).³⁰ Today, the remittances sent back by migrants are believed to account for one third of the RM's GDP (Ibid.). According to the International Organization for Migration (IOM), the bulk of remittances are used for meeting basic consumption needs, and are seldom used for savings or investment.³¹ Remittances will most likely remain the key to sustaining subsistence production into the near future, providing enough money to supplement family incomes when agriculture fails and thus allowing fragmented producers to stay on the land, but not providing enough capital for producers to break the vicious circle and become commodity farmers. However, some land consolidation has occurred. For example, large "agro-holdings" have begun to emerge in the RM and are soaking up thousands of hectares of subsistence producer land.³² These organizations are externally owned and managed by corporations connected to global food commodity chains. Their relationship with local communities is purely commercial and the bulk of their labour is temporary.³³

Moldovan rural development now resembles the dualistic pattern of underdevelopment found on the *hacienda* and peasant farms of Latin America more than it does the commercial family-farm pattern touted by donors. As such,

²⁹ In 2000, USAID responded to the criticisms by the GOM and launched the "Private Farmers Assistance Program," a program loosely based upon the early TACIS service cooperative model. In 2005, the GOM launched a national "Moldovan Village" land consolidation program. In 2007, the World Bank began six "re-parceling" pilot projects.

³⁰ Close to one quarter of the rural Moldovans work abroad in a given two year period and in some villages up to 40% of the working population is abroad at any given time. See also Sander *et al.* (2005).

³¹ See <http://www.iom.md/migration&development.html>; accessed November 12, 2008.

³² Interview with World Bank researcher on 12 May, 2005.

³³ See Rylko (2005) for a similar account in Russia.

the Marxist scholars I referenced at the beginning of this article will most likely find increasing relevance in the RM if the pattern continues. In fact, I deliberately chose to reference Latin American to contrast postsocialist arguments that 1) reject comparisons with the developing world and 2) argue against the use of the term “transition to market.” Quite the contrary, the RM has indeed “transitioned” to a market economy, but to one which now occupies a subordinate role in the global one.³⁴ However, it should be clear that the Moldovan path to the periphery is not entirely the result of the destruction caused by global markets, but also of deliberate interventions. Indeed, perhaps the most striking contrast we find between the interventions of the developing and postsocialist world is that those of the former were believed to be needed to mediate the destructive aspects of capitalism’s “immanent” development (Cowen and Shenton, 1996), while those of the latter have been quite the reverse.

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³⁴ This is not to suggest that Moldova did not occupy a subordinate role as a republic under the USSR, instead it is to state that subordination in the global economy is according to the terms of the market.

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ANTHROPOLOGICAL AND GEOGRAPHICAL PERSPECTIVES ON PARCEL ELASTICITY IN POLAND

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A commonplace conundrum found in Poland, as well as other countries, lies in discrepancies between formal records of land ownership and informal uses of land that point to local challenges administrative institutions and civil society. In Poland, a well-known unique case in central and eastern Europe regarding collectivization, researchers reported discrepancies as high as 40% with considerable variation between regions. This paper examines how differing perceptions of accuracy offer an indicator of these challenges, especially between formal administrative records of the land cadastre and informal civil society land tenure. Comparing accuracy perceptions in three counties (*powiaty*) in different regions in Poland aids distinguishing the discrepancies. The paper proceeds by broadening Verdery's concept of land elasticity beyond her consideration of post-socialist parcel restitution to consider these discrepancies as indicative of larger issues. Specifically, this research suggests that differing political society and civil society perceptions of accuracy indicate both the degree of elasticity and the local significance of discrepancies. The research draws on studies of three counties (*powiaty*) in different regions in Poland. The assessment of the empirical evidence also points to elasticity's significance for other interactions involving formal state institutions and informal civil society arrangements. Local institutions and participants develop different strategies that seek to optimise respective outcomes in these interactions, surreptitiously choosing between fulfilling mandates and optimizing socio-economic situations. Therein lies interesting issues to consider related to larger issues surrounding land ownership and use rights in transition countries.

Key words: Poland, cadastre, tenure, accuracy, elasticity, land, rural.

INTRODUCTION

The re-institution of private property rights has been central in transformations since 1989 from communist and socialist regimes (Burawoy & Verdery, 1999). However a noticeable lag between policy, implementation, and affect has been especially pronounced. Indeed, the processes of transformation in central and eastern Europe reveal discrepancies between formally institutionalised practices of organising

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and governing and informal co-ordination of land use and ownership (Food and Agriculture Organization, 2006; Sikor, 2006). These discrepancies result from interactions that occur outside of the open market and land transactions that take place informally at the village level. The conundrum shows itself that up to 30% of rural land in Poland was not recorded in the cadastre (Csaki & Lerman, 2001; Prosterman & Rolfes Jr., 2000), although 74% of the land had remained in private ownership during the socialist period 1944–1989. A significant detail here is that private landownership in socialist Poland was quite unequal across the country. Former German territories especially evidenced a far lower percent of private land ownership (Bański, 2001; Chodakiewicz *et al.*, 2003; Csaki & Lerman, 2001; Ingham & Ingham, 2002). Differences in the discrepancies might well persist even 20 years after the move from socialist to capitalist economic systems. Of the many facets involved in the issue of rural land ownership discrepancies, this paper focuses on accuracy issues seen in light of discrepancies between the formal institution of the cadastre and informal institution of land tenure encountered in three rural areas of Poland.

DISCREPANCIES AND ELASTICITY

LAND CADASTRE – LAND TENURE DISCREPANCIES

Studies conducted in the 1990s first identified the discrepancies between the land cadastre and land tenure in Poland (Bogaerts 1997; Kozłowski 1997; Prosterman & Rolfes 1999; Swinnen 1999). Later studies continuing the evaluation of agrarian reform project also point out the discrepancies problem and highlight its consequences for EU accession (Csaki & Lerman, 2001; Dale & Baldwin, 2000; Prosterman & Rolfes Jr., 2000). These studies report that rural areas of Poland have unclear property ownership of between 3% – 40% of the parcels, dependent on the area's history (land ownership under the partitions, post-World War II re-settlement, types of collectivization in particular), forms of farming established during the socialist period, post-socialist transition, cultural (e.g., disrepute of political authority), socio-economic (e.g., demise of collectives), and political (e.g., status in the Wojwodscha (state or province) following administrative reform in 1999) factors. Regions with such large discrepancies would face challenges in the transition to capitalist land markets according to the reports.

Numerous observers have seen the unclear rural property situations to be a key impediment to EU accession (Van Dijk, 2003). Considerable EU funding, already under the PHARE and SAPARD programs, was directed to improving the cadastral infrastructure in Poland (Steenberghen & Beusen, 2003). Polish funding and revisions corresponded. Closely related although administratively distinct, the Land Parcel Information System (LPIS), newly created with EU support as part of

the Common Agricultural Policy (CAP), is the key administrative technology for recording agricultural land use. Based on the existing cadastre, but created only as a registry of agricultural parcels, its sole formal use is the control of farmer applications for CAP and national support. It is maintained in Poland by the Agency for Restructuration and Modernization of Agriculture (ARMA).

Considerable resources and improvements to the administration of the cadastre have not however led to marked improvements in the discrepancies between the formal records of the cadastre and informal uses of land tenure (Harvey, 2006). Limited administrative reconciliation of complicated paper-based cadastral records split between three ministries (Bydłosz & Parzych, 2007) and complicated legal procedures (World Bank, 2006) remain obstacles for improving efficiencies in the cadastral administration.

ELASTICITY AND DISCREPANCIES BROADLY CONSIDERED

In any country, the formal land cadastre and informal land tenure appear to stand in a flexible relationship with one another, or what I refer in this paper to as *elasticity*. This usage draws on the work of Katherine Verdery (1994; 2003) on parcel and land elasticity extending it to consider relationships between informal land tenure and the formal cadastral records in terms of interactions among political society and civil society actors. In Verdery's anthropological analyses of the processes of restitution in a rural Romanian area, she describes the multiple boundaries, sizes, and shapes that a parcel of land could take during the process of property restitution in a rural Rumanian community: Although the parcel is always the "same," she documents how it goes through startling and arbitrary changes in order to reconcile official cadastral records with local resident's differing assertions. Verdery's study focuses on the contradiction in the ever-changing location of boundaries and shape of land parcels that people from the village present in contrast to the static administrative construction of the formal cadastre.

Although restitution cases in Poland are limited to religious organizations (Blacksell & Born, 2002; Chodakiewicz *et al.*, 2003) and there is no law regulating restitution issues, discrepancies such as those the Romanian villagers were forced to resolve abound likewise in Poland. Further complicating matters are disagreements between different cadastral records and the registry of land titles, the existence in many cases of multiple formal cadastral documents for the same parcels and the usual problems of resolving ownership rights to property in areas heavily impacted by war and mass movements of population. In these circumstances, the reach and complexity of the discrepancies between formal land cadastre and informal land tenure mean the involved institutions must maintain this elasticity in order to retain some facility to resolve issues. Reflecting deeply rooted societal, political, and economical disturbances, elasticity has become an essential part of social interactions. The following discussion examines these tensions at the local level and the discrepancies.

The discrepancies in Poland suggest that the issues Verdery anthropologically considered and analysed using the concept of elasticity are much broader than issues of restitution, changing boundaries, and changing locations of parcels. While both cadastral and peasant representations of land are elastic, a larger measure of elasticity exists among the cadastral records and the actual boundaries of land use that corresponds to elasticity between formal institutions and peasant organization of land tenure. This paper posits that elasticity can be considered in terms of different groups' understandings of accuracy, or the degree to which formal records and boundaries correspond to the actual uses and boundaries.

This elasticity involves more than land use and rights; it also points to complex interactions and tensions between political society and civil society. Political society in this paper is defined as the formal institutions of state and civil society is the informal organization of groups. This oversimplification to ideal types is open to critique (Hann & Dunn, 1996), but serves as a helpful analytic for this paper to begin to unravel the many dimensions of societal relationships among various activities and institutions to land. It is important to stress that as ideal types, the institutions that maintain the formal land cadastre are part of political society; the institutions that maintain informal land tenure are part of civil society. Whereas from an analytical viewpoint political society is understood in the social sciences to be institutions that relies on state force and civil society institutions are voluntary associations (Glinski 2002), this distinction is hard to uphold in the messy entanglements in day-to-day life. Political society and civil society are usually intertwined and interact in myriad ways. Following the rich anthropological literature on land tenure and transition around the world, the viability of a cadastre, even when elastic, is contingent on finding an accord between political society and civil society land-related interactions (Buchowski, 1996; Genov, 2002; Hann, 1985; Meier-Dallach & Juchler, 2002).

ACCURACY AND ELASTICITY AND DISCREPANCIES

Perceptions of accuracy serve as indicators of elasticity, broadly understood. Institutions and people desire accurate correspondence between administrative records of land ownership, including boundaries, and actual use. Some level of accuracy, which varies considerably around the world, should minimize discrepancies to help improve the surety of land property ownership and minimize transaction costs (Auzins, 2003; Dale & McLaughlin, 1999; Lampland, 1992; Powelson, 1988). The balance between accuracy and discrepancies also is indicated in the degree of elasticity. This is not a metric for determining the specific amount and type of discrepancies, but a heuristic to analyze the complex interactions among actors in political society's institutions of governance and civil society informal institutions and communities.

In the research for this paper, participants use the term accuracy in different ways. Polish rural residents (peasants) and local administrators make distinctly different associations when they use the term. Rural residents understand accuracy to be indicative of a perception of correspondence of their land ownership to official records that they want officials to be aware of. Paying taxes for land used as a road is undesirable, but using the road as farmland and avoiding paying taxes may be acceptable for many rural residents. Local administrators, acting as agents of the government, refer to laws, guidelines, and procedures that define the quintessential legal characteristic of formal documents' veridicality in all binding transactions and look for the opposite correspondence, between documents and use, which they must reconcile before any transaction can occur. In other words, for the administrator, using the road as farmland and paying taxes possibly may be acceptable, but using the road as farmland and avoiding paying taxes will be undesirable. In consequence, the formal organization of the cadastre and informal arrangement of land uses, or land tenure, can retain considerable discrepancies even though the formal documents are acceptable to the involved parties.²

POLITICAL AND SOCIAL DIMENSIONS OF DISCREPANCIES IN POLAND

Any specifics of discrepancies in Poland are complex, in part because of the challenges in the administrative organization of the cadastre, but more generically they reflect the chequered history of the country. Differing degrees of collectivization constitute the proverbial tip of the iceberg. Local distinctions inform the comparative research project that this paper reports on. Indeed, strongly and lastingly impacted by historical events, Poland's modern history of the last 200 years is characterised by partitions, colonisation, and major wars. Poland did not exist as an independent country for 125 years (1795–1918). Social organizations and cultural attitudes towards governance are heavily impacted (Gorlach, 2007; Gwozdz, 2002; Hann, 1985; Jagusz, 1935; Kurczewski, 2003). Additionally, the overall governance and administration of the cadastre is complicated by the development of agencies in different ministries with responsibility for cadastral issues.

RELEVANT ISSUES FROM POLISH HISTORY

Since the Piast dynasty converted its realm to the Christian faith in 866 AD, 1989 marks the first time in over 300 years that Poles could develop a cadastre without facing the immediate consequences of war, division by occupying powers, or significant foreign intervention. In this historical context, post World War II socialism remains significant, but has been understood in relation to the previous

² The relevant Polish law states that a correspondence between boundaries in the cadastre and the same boundaries on the ground *should* exist. (§20–29 Geodesy and Cartography Law)

periods. Indeed, socialism had grave consequences for the economy, but, in comparison to other central and eastern European countries, private farming remained strong: only 26% of Poland's arable surface had been collectivised (Ingham & Ingham, 2002); the degree of collectivisation varied considerably regionally. Still, in the majority of Poland's 312,683 km² area fragmentation of land ownership and use in Poland stands out in comparisons with other CEE countries (Csaki & Lerman, 2000; Lerman, 2000; Tillack, 2000) and remains the key factor people found that would inhibit economic development and EU accession.

Historical contingencies have influenced the landscape, as is still visible in most rural areas of Poland. The narrow stripe-like parcels that characterize much of Poland's southern rural regions signify socio-economic relationships that had to exist as an alternative to changing and often repressive governance. They bear witness to the importance of family-based farming and inheritance among family members (Stasiak, 2003). They arguably also reflect strategies of civil society members who sought to avoid occupying government power and spread tax obligations among family members and obfuscate ownership status. This characteristic of the landscape points to an issue certainly larger than tax avoidance and that lies among the roots of political authority tensions between Polish civil and political society. The widespread disrepute of political authority associated with limited consent between political and civil society took form in the colonialist relationships between Poles and occupiers. For example, Davies' historical analysis makes the point that "political authority was perceived as an alien imposition in partitioned Poland on several counts" (2001). This was particularly relevant for land ownership: "the disrepute of political authority was reinforced by the fact that other forms of existing authority, in the social and religious spheres, remained essentially intact. The pattern of land ownership, for example, was altered, but not overturned" (Davies, 2001 p. 215).

The unabated significance of Polish farmers in twentieth century rhetoric is another indicator of its importance in politics. Changes have been considerable. After the Polish Republic was founded in 1918, land reforms conducted until 1939 had overall limited effects, although individual re-appropriations had sizable impacts (Blobaum, 1995). Post-World War II agrarian reforms had far more profound consequences; however, the greatest impacts of collectivization were mostly limited to previous German-held areas (Bański, 2001; Gorlach, 2007; Kulikowski, 2004; Tangermann, 2000).

COMPARISON OF DISCREPANCIES

RESEARCH OVERVIEW AND METHODOLOGY

The results presented here are from the first interviews conducted as part of a now five-year long research project, which began in 2003. This portion of the

research focuses on interviews with rural residents, local government officials, regional government officials and national government officials. During 2005 to 2008, project researchers conducted interviews in three *powiaty* (counties), selected to maximise the historical, economic, and cultural diversity found in Poland for comparison purposes. Powiat A is located in the northwest, in an area that was German territory from the close of the 18th century to the end of World War II. It is in a peripheral area of Poland, but has seen steady agricultural investment since 1989 in large-scale farming. After 1989 and 2004, when Poland joined European Union, it has seen much transformation of agricultural production from cattle to grains. Powiat B is in the center of Poland and was part of the Russian partition until the end of World War I. Because of its microclimate, it has become a leading apple orchard center of Poland from the time that transportation improved to the area in the late 19th century. After 2004, orchard farming was intensified because of sizeable returns. Powiat C is in the Southeast of Poland, previously part of the Austro-Hungarian partition. During the socialist period cattle dominated along with some specialized crops. The agricultural sector here largely faced collapse after 1989. Now it is also peripherally located with more limited agricultural investments since 1989 and limited tourism. Researchers conduct approximately 15 interviews with local and regional government officials and Polish students trained in the methodology conduct 120 interviews in the same counties. A smaller number of interviews are conducted with national government officials from the Ministries of Infrastructure and Agriculture, as well as from the Agency for the Restructuration and Modernization of Agriculture (ARMA) during the course of the research.

The interviews all employ the same questions, edited, however, for the particular group. However, all interviews, regardless with whom, follow a semi-structured methodology and no answers are pre-defined. This allows for interviewees to engage with the questions in the manner they find best, avoid pre-defining answers that may be selected simply to expedite an interview or avoid engaging tensions, and simply say “No” when they wish not to answer a question. Interviewers also have in this sense more latitude to engage with interviewees according to the situation and temperaments. To introduce them to this methodology, all Polish students conducting interviews take part in workshops before conducting interviews. The same questions and methodology will be used in years two and three of this research.

Questions raised in the interviews focus on land use and ownership, relationships between rural residents to other rural residents, relationships to government, knowledge of EU programs, understandings of transformation processes, and basic demographic characteristics. Maps of the administration referred to in the interviews are county surveyor maps and ARMA maps, based on orthophotos³ and only used after 2005 as part of the implementation of CAP⁴

³ Orthophotos are a special kind of aerial photography, prepared at a constant scale ratio to the ground and rectified to remove the affects of land elevation on land surface size.

funding mechanisms. This focus exemplifies key maps used by the administration and rural residents.

COMPARISON OF DISCREPANCIES AND ACCURACY

The discussion in this paper focuses on the responses to three questions asked in the period 2005–2008 related to discrepancies and accuracy. One question from the survey instrument focuses on whether the interviewee has received maps of their farm from ARMA. This indicates as well if the person is receiving Polish or CAP support funds. The second question asks whether any cadastral maps have been requested from the powiat by the interviewee. The third and final question under consideration here asks whether the maps correspond to the area that the interviewee actually farms. The responses to these questions point to specific discrepancies and possibly the explanation for discrepancies. The 121 interviews can be hierarchically organised into each of the three powiats and in each powiat into four *gminy*⁵ where interviews were conducted with the gmina director (*wójt*) in each year of the study.

In regards to the first question, out of the 121 rural resident interviewees in all three powiats, 115 respondents indicated that they had received maps from ARMA maps. The accuracy of the ARMA maps was more variable: 72% of the respondents report that the maps are accurate, 6% said they were partially accurate, 6% said the maps were inaccurate and 9% did not know the accuracy or had not checked. Overall the interviewees expressed satisfaction with the ARMA maps. Turning now to requests of powiat cadastral maps, 49% said that they had requested maps, 13% indicated they received maps without a request, and 38% said they had not requested maps. Only 39% of the interviewees reported that these cadastral maps were accurate.

The question about correspondence was positively answered by 80% of the interviewees. Only 3% indicated that they did not know if the maps corresponded and 7% said they partially corresponded. 7% said that the maps did not correspond. Interesting to note is that two interviewees said that the maps probably corresponded to what they farmed. Regional differences can be noted as well. Powiats A and B generally report a high level of ARMA map accuracy versus a much lower level of accuracy in powiat C. Within each powiat, the variability of the powiat map accuracy is extremely high. As this may be an artefact of the interviewee selection, the analysis of these responses calls for additional data.

⁴ CAP is the acronym for Common Agriculture Policy, is the European Union's common policy for rural regions in member states (see http://ec.europa.eu/agriculture/index_en.htm).

⁵ Powiat corresponds in terms of the public administration to the UK county and gmina to the UK municipality.

DISTINCTIONS BETWEEN COUNTIES

In terms of ownership accuracy, local government officials' responses suggest marked differences between the three counties. The answers of A officials suggest that cadastral accuracy in powiat A is as high as 99–100%. Here, gmina officials' perspectives on improvements to registration in this powiat vary somewhat. Most say that there has been great improvement because of new technology and equipment, although the official of one gmina says that every second farmer had problems with boundaries. Farmers report 97.5% maps accurate and corresponding to land parcels they farm. Gmina officials in powiat B respond that the accuracy of land ownership records is 95–100%. Also all gmina officials say that there had been no real improvement to the registration of ownership since 1989 and remark it had been very hard to address ambiguities. These responses suggest there are some land ownership issues that have yet to be resolved, or have been resolved in a discretionary or unfinished juridical manner. As farmers reported 60% map accuracy in powiat B the discrepancies may be larger than indicated by officials in interviews. The answers of powiat C officials to the same questions suggest that cadastral accuracy varies in each gmina. The range of accuracy given by gmina officials is from 65% to 100%. Suggesting a limited understanding of Polish cadastral laws, they also noted that registration had improved due to new technology and ortho-photo maps.

Responses to questions about the accuracy of boundaries vary even more. Responses from local government officials in powiat A echo farmer interviewees' responses about the high accuracy of boundaries, which is between 90–100%. A different situation is found in powiat B where some local officials report having boundary discrepancies even when farmer interview results indicated the farmers interviewed had 100% boundary accuracy in these gminas. Local government staff generally find that ARMA maps were 100% accurate, although officials of one gmina responded that only 80% of ARMR maps were accurate. The range of boundary discrepancies ranges between 50 and 95%. Officials in one gmina estimate discrepancies to be 50%; the estimate in another was around 30%; the discrepancies in a third gmina were estimated to lie between 90 and 95%. The official of one gmina reports to have "marginal discrepancies, very little percent". However, in this particular gmina 30% of the rural residents interviewed report having ambiguous boundaries. In Powiat C most local officials reported having discrepancies between cadastral boundaries and land tenure boundaries but they did not always specify what percentage of discrepancies has been regulated. In one gmina where both officials and farmers specified a percentage, the gmina official's estimation of boundary accuracy coincides with farmers' reports.

ELASTIC STRATEGIES

Reflecting different circumstances and histories of the area, rural residents and government staff pursue strategies that reflect different perceptions of

accuracy, priorities and goals, as well as the desire to present a certain image of the area. The data indicates the differences possibly originate in perceptions of accuracy and the correspondence between surveyed maps and the newer ARMA maps. Overall, the differences among the three powiats are greater than within any of the three (see Table 1). Only in powiat A are both ARMA and powiat maps important and accurate. Most of the maps received were reported accurate and corresponding to the land farmed. Out of three powiats, A has the highest map accuracy and correspondence. Powiat B stands out for having both lower accuracy maps and correspondence of both powiat and ARMA maps in the eyes of the farmers. The majority of farmers in these two powiats reported one or both maps being inaccurate or partially accurate. The peculiarity of powiat C is the low accuracy of powiat maps and low accuracy of ARMA maps. Only nine farmers out of 41 requested powiat maps and the majority of the reported these maps to be accurate. The accuracy of powiat and ARMA maps in powiat C is higher than in powiat B according to farmers.

Table 1

Overview of Rural Residents' Accuracy Perceptions

Counties	Positional accuracy of maps in relation to farmland	Correspondence of ARMA and surveyor maps
Powiat A	Good	Good
Powiat B	Low	Low
Powiat C	Low/Good	Low

The comparisons of these responses across the three counties suggest that maps constitute an important, but vexed part of farmers' relationships with local and regional government agencies; they are invariably subject to questioning and contestation. Their accuracy varies considerably. Their significance also varies greatly: the ARMA orthophoto maps, produced only since 2005, have the highest level of accuracy for respondents. The rural residents indicate that the county cadastral maps are much less accurate. For example, the interviewees relate that the county maps failed to take into account a number of boundary changes. One common example across Poland, is that the surveyor's map fails to show land that was dedicated before 1989 for road construction, but was never compensated and, in fact, at least one respondent reports still paying tax for that land.

In terms of the relationships between responses to these three questions, it is interesting to note some conundrums that point to how strategies involving accuracy serve rural residents as a token of representation for the administration that veils the actual situation. First, some of those farmers who indicated that ARMA maps were accurate reported that the maps failed to correspond to what they farmed. Second, some of the farmers who requested and received maps from the county do not know the accuracy of ARMA maps, it can be explained by the

fact that the county cadastral maps are legally more significant. Third, there are farmers who do not know the accuracy of both ARMA and county maps. Also, there are two instances when the farmers state that ARMA and county maps are both accurate and both correspond to each other but they do not correspond to what is farmed. However, the accuracy varies. The discrepancies between cadastral boundaries and actual boundaries are the greatest in powiat B. In powiat C the discrepancies between cadastral boundaries and actual boundaries are smaller than in B. The data analyses of powiat A demonstrated the smallest discrepancies among three counties. Interview results suggest that in each county local government officials' estimation of boundary accuracy is higher than the farmers' perceptions and knowledge. Also, estimations of gmina officials were the most correct in powiat A. In each county, responses indicate that rural residents tend to avoid formal legal processes and will tolerate discrepancies to their detriment if the costs are seen to outweigh the potential benefits. Of course, these issues can resurface or become flashpoints for other conflicts.

Resolution of the discrepancies is clearly on the mind of local government officials. The majority of officials interviewed suggest that while discrepancies need to be resolved through formal legal means, they provide regular informal support in finding resolutions to address contingencies. One gmina official also reported that farmers usually solve problems by themselves, come to him, then the municipality advises them on how to proceed. Correspondingly, all local officials stressed the importance of avoiding judicial processes. Many went so far as to sketch out with anecdotes the importance of the local government's head in finding resolutions to boundary problems, that no matter how complicated they seem at first instance only become more complicated when taken to court. Coupling of informal support and mediation of conflicts with advice for taking up the formal resolution is the local government's strategy to addressing discrepancies brought to their attention. The approaches and role of the wójt vary greatly but the emphasis on resolving discrepancies through amicable agreements that are later formalised through legal processes is evident.

DISCREPANCIES AND ELASTICITY: AN AGE-OLD WAY OF LIFE

The research findings and analysis offer insight regarding the paper's main concerns with elasticity and discrepancies as indicated by perceptions of accuracy. In spite of discrepancies, the land cadastre fulfills several roles. First, from a pragmatic standpoint, the cadastre serves as the frame of reference for legitimating activities that receive state support. It is not enough that the state takes an interest in administering land ownership and rights – after generations of colonization and subversion of government, rural citizens acquiescence to government interventions when it is in their interest to do so – otherwise they find ways to subvert while at

least complying as a pro forma level. Secondly, from a more theoretical standpoint, elasticity is no stable analytical category and seems to vary in culturally manifest, historically contingent relationships between governance and communal authority. Accuracy, correspondingly varies, but offers a helpful measure of the significance of discrepancies for rural residents.

This paper focuses on the elasticity in terms of accuracy, as understood by actors from civil society and political society in three counties of Poland. Clearly there are more complex interactions between the formal land cadastre and informal land tenure involving government officials and rural residents. Indeed, the facet of property elasticity is just one aspect to consider regarding the striation of elasticity throughout society. Significantly, this paper brackets off the complex issues of different legally mandated cadastres and the elasticity among them and the complex relationships between political society and civil society. In Poland we find three institutionalised cadastres that facilitate an inordinate amount of elasticity necessary for a viable adjudication of discrepancies between political and civil society. Political society has vested interests in developing land markets and enhancing the viability of the cadastre. In this light, the limits of this paper's focus are worth considering:

- how is governance affected by these discrepancies and elasticity?
- how are governance interactions manifest?
- what are the impacts of these discrepancies?
- to what degree are these discrepancies evidenced in other countries, both regionally and globally?

It remains for future papers on this research to engage these issues.

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LOCAL FOREST DEPENDENCE IN CENTRAL EASTERN EUROPE: BULGARIA AND POLAND

CAEDMON STADDON*, STANISLAW GRYKIEN’**

This paper charts differences in the relations between communities and their forested hinterlands in two postsocialist regions: southwestern Poland and southwestern Bulgaria. The analysis presented here suggests that whilst there are similarities in experience there are also many differences, reflecting different initial starting points, development trajectories (what Stark and others have called “path dependence”) and indeed relative geographical location. In other words, just as there was no uniform experience of state socialism, neither, it transpires, is there a uniform experience of post-socialism. We explore also the issue of attachment to place as a contributory factor in local environmental attitudes and the findings are surprising. Some implications for the study of community-environment relations and for policy-making in post-socialist localities are presented by way of conclusion of this brief paper.

Key words: Bulgaria, Poland, forests, postsocialist transformation, forest dependence.

INTRODUCTION

This paper explores the geographical variation and changing relations between two postsocialist communities, in Poland and Bulgaria, and their forested hinterlands, particularly in terms of their informal (non-commodity) dimensions. While there has been much attention paid to general and national-scale issues in postsocialist environmental reconstruction (e.g. Carter and Turnock, 2001; Peterson 1993), relatively little research exists that examines the specifically *local* impacts of broader postsocialist transformational processes. Moreover there has been a tendency, in some circles, to see the postsocialist localities as very much “of a piece”; that is to say as undifferentiated social settings (but see studies in anthropology including Bridger and Pine 1998; Burawoy and Verdery 1999; and Turnock and Staddon, 2001). Environmental issues especially have tended to be treated at the national scale and through the relatively generic lenses of either policy reform (Moldan and Klarer, 1998), overall environmental quality assessment (Stanners and Bourdeau, 1995) or

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environmental “culture” (Mirovitskaya, 1998; Oldfield, 2006). Relatively little has been said about the interactions between real people and their natural environments during periods of wholesale political economic transformation. Unsurprisingly, in periods of economic turmoil these interactions tend towards expropriation of “use” (i.e. not “commodity”) values from local hinterlands, for example the cutting of trees for firewood or the hunting of birds for food. Such interactions often appear atavistic, that is to say that they hearken back to pre-existing subsistence forms of common property management and mutual aid, often mediated through patriarchal kinship structures.

There is a need to move beyond empirical description, where possible, towards theorisation of the changing relations between localities and their resource hinterlands during “actually existing transition” (cf. Bridger and Pine, 1998; Burawoy and Verdery, 1999). Here we develop further ideas about the multiple roles of rural, non-core, localities in the processes of postsocialist transformation, with reference in particular to the concepts of a “transition model of development” (Staddon, 1999) and “natural resource dependence” (Beckley, 1998; Randall and Ironside, 1996). The two localities discussed, the Klodzko Basin in southwestern Poland and the Razlog Basin in southwestern Bulgaria have much in common besides their shared experience of 45 years of central economic planning (Map 1: Central Eastern Europe). Both are mountainous peripheries with long historical geographies of primary resource extractive industries and subsistence agriculture. Both experienced the restructuring of their forest stands attendant on the advent of “scientific forestry” from the early 20th century onwards. Having said that however there are also compelling contrasts in terms of settlement history, relative location within European economic and political space, and even the relations of these regions to the competing claims of emerging nation-states in the early 20th century, between Czechoslovakia and Poland in the case of Klodzko and between Bulgaria, Greece and Macedonia in the case of Razlog. The object of this short paper then is to present the outlines of a comparative analysis of community-forest interactions in two localities well-known to the authors from previous fieldwork.

The following sections treat the complex processes of forest community restructuring, with reference to legislation, economic and environmental statistics, and in the context of ethnographically-orientated case studies of two small communities in the mountains for southwestern Bulgaria and Poland respectively. Each of these is developed in separate sections which comprise the main body of this paper. The research upon which this paper is based was conducted between 1999 and 2006 and included detailed key informant interviews, participant observation and social surveys of local resource use and attitudes towards the environment.¹ The

¹ The surveys were carried out in the summers of 2000 and, in the Bulgarian case, again in 2006. In all cases the surveys were conducted door to door by trained surveyers from local universities using a sampling strategy designed to catch as many different sorts of people at home as possible (rather than being strictly “random”). In 2000 206 household surveys were conducted in a selection of villages in the *gmina* of Stronie Slanki and 120 in a selection of villages in the *obshtina* of Bansko.

concluding section of the paper restates the basic propositions that a transition model of development has emerged that reinforces certain kinds of natural resource dependency, and indeed that they express the intentionalities of a “recombinant modernity” that has bewitched the Western political imaginary (Gregory, 1994; Watts, 1998). Some lessons for the critical rethinking of the environmental geographies of actually existing transition in Eastern Europe are then presented.

INFORMAL RESOURCE USE IN THE RAZLOG BASIN, BULGARIA

The Razlog Basin is an upland area (MSL, 800 metres) formed at the junction of the Pirin, Rhodope and Rila Mountain massifs and incorporating the two municipalities (“*obshtini*”) of Razlog and Bansko. In addition to those municipalities, with populations of 13,911 and 11,974 respectively, there are a number of smaller settlements within the two municipalities including Banya (2825), Dobrinishte (3188), Gorna Dragleshta, Bachevo, Dolna Dragleshta and Godlevo. The region has a long and venerable tradition within Bulgarian history; patriots such as Pasi Hilendar, Nikola Vaptsarov and Neofit Rilski were born here, and events such as the 1903 Preobrazhenie Uprising against the last vestiges of Ottoman rule had strong local expressions here (Crampton, 1997). During the state-socialist period (1944-1989) the region was administered chiefly in terms of the industrial exploitation of its natural resources with some ancillary workshop development as part of the “social industries” policy (Begg and Pickles, 1998; Staddon, 1999). Though the Razlog Basin has suffered severe industrial decline since 1989 and its agricultural sector has been restructured into a largely autarkic subsistence production system, it maintains at least two key profitable articulations with regional, national and international economies: natural resource extraction and tourism (Naidenova *et al.*, 1989/90; Staddon, 1999; Staddon and Cellarius, 2003). Forestry and wood-processing, though much changed since 1989, continue to account for a large proportion of net capital inflows. Mountain tourism, with its origins in the royal hunting reserves of the late 19th century, is consolidating its position as a significant source of cash income and local employment. Bansko in particular has experienced a huge property development boom in recent years that has more than doubled the number of buildings in the municipality. Labour and skills flows also connect the southwest to the larger national economy, largely in the form of youth outmigration to the regional capital Blagoevgrad or, more likely, to the capital city Sofia. However throughout the postsocialist period the ultimate source of surplus value has been the local environment, meaning in this case forests, rivers, minerals, flora and fauna and also pastoral and mountain landscapes.

As discussed elsewhere (Staddon, 2001; 2005), significant foreign industrial interest in the forests of the Razlog area has been restricted to a study of the

softwood supplies in the region by the Swedish IKEA corporation in 1993/4 and an Italian-Bulgarian joint venture to take over the “Pirinhardt” paper mill at Razlog (defunct as of June 2006). Other foreign involvement in the forest products sector have been far more speculative and less easy to track, involving primarily Turkish and Greek-organized exports of raw and semi-processed timber to Greece and Turkey. Connections with foreign firms have also been established in the furniture and toy-making sectors either through smaller joint ventures or through the conclusion of direct agreements between Bulgarian and foreign firms. Even smaller, more diffuse and environmentally problematic have been the establishment of myriad charcoal-making camps using Roma labour which can be encountered throughout Bulgaria’s woodlands particularly in the summer months (Staddon, 2009). Interestingly, whilst the foresters interviewed by Staddon recognized the existence of these camps and even spoke of their market relations with factors in the Rhodope and even in Greece and Turkey, they vastly preferred to ignore them. It is tempting to interpret this elision in terms of a marginal(ized) people pursuing a marginal(ized) activity (Fonseca 1998; Staddon, 2009).

Though reliable data are hard to come by the problem of illegal logging has been recognized as a significant threat to sustainable forestry in the region. In general key informants within local Forestry Districts and the National Parks administrations claimed that the total volume of illegal cutting could be divided into that being conducted by individuals to help ensure basic survival (in Muth’s (1998) terms “illegal but licit”) and that being conducted by shadowy “mafia” formations interested in reaping quick profits through the export of raw logs, or sale on to local producers (both illegal and illicit). Unsurprisingly the latter often use the poverty of the former to lure individuals into assuming the risks incurred by illegal cutting on their behalf. Through 2002 local foresters pointed out that the apprehension of illegal loggers was very much an everyday occurrence, but that these criminals also often went unpunished either because of legal technicalities or because they simply could not be made to pay the fines mandated in the 1997 Law on Forestry (100–5,000 Leva, or US\$33–\$1650, per occurrence). Since the number of “forest guards” is small (one guard for every 2000 ha according to the Law on Forestry), there is a suspicion that many acts of tree theft, even large ones, must go undetected. In one anecdote it was claimed that illegal logging had effectively stripped a small area of woodland located within Rila National Park near to the road from Belitsa in the northern part of the Razlog Basin.

A related issue pertains to the extensive use of forested lands by local populations for a wide variety of informal hunting, fishing, gathering and pasturing activities. Though each of these activities is regulated as a matter of law through a system of permits issued by local Hunting and Fishing Associations and Forestry Offices it appears that not everyone is much bothered about the procurement of

necessary permits. Available data suggest that in addition to the hunting of increasingly scarce chamois, deer and other mammals, fishing for wild or farm bred trout, local populations are extensively involved in the gathering of firewood, and the collection of herbs and several varieties of mushrooms (Cellarius, 2004; Staddon, 2001). It is the latter that has received the most attention, as Bulgarian mushroom collectors, especially of Chanterelles (*Cantharellus cibarias*, “patchi krak”) and Porcini (*Boletus edulus*, “manatarki”) are by now well integrated into Europe-wide distribution networks. Cellarius (2001) adds that there is lesser interest in several other varieties including Fairy Ring (*Marasmius oreades*) and Parasol (*Lepiota procera*) mushrooms. According to National Forestry Board statistics, between 1996 and 2001 the amount of mushrooms collected throughout Bulgaria rose sevenfold to 2.8 million kg, though there are good reasons to consider this a significant underestimate.² Herb collection is also big business, most recently affecting the native distributions of St John’s Wort (*Hypericum perforatum*, “zhult kantarion”) and Speedwell, “Velikdenche”, *Veronica officianalis*).³ Though only a few herbs and mushrooms have commercial potential, rural Bulgarians use more than 100 different species on a regular basis for household purposes (Leporatti and Ivancheva, 2003). It is difficult to know with any precision what effects these activities might have on forest ecosystems, as there are few empirical studies to draw upon. One of the few exceptions is Bernath (1999) who argues, based on official data, that the ex-socialist countries have become significant source regions for supply of wild herbs (e.g. *Mentha piperita*) and medicinal plants (e.g. *Juniperus communis*) into Western Europe.

Procurement of wood is a particularly important issue for local households since all households use it as a primary fuel source and along with brick it is a key building material. Average local demand is in the neighborhood of 10–20 m³/year; a good sized truck-load. Getting wood involves often complex logistical arrangements, including the rental or, far more likely, borrowing of a suitable truck, chainsaws, axes, etc. and very probably also a few extra bodies to help with the hard graft of cutting and loading. Technically, people who do not own their own woodlands (which in the Razlog Basin is pretty much everybody) must buy a permit from the local forestry office in order to collect deadfall within state forests. Also, most people are sensitive to the fact that most wood needs to be air-cured for at least half a year before it is useful for anything (building or burning) and that different woods are useful for different purposes. Thus, for example, pine species are often sought out for their flammability (owing to higher pitch content) though

² Just scaling up hard data received from a sample of regions around the country suggests that official data seriously underestimate the scale of collecting.

³ Zhult Kantarion is widely used as an anti-inflammatory, Velikendche is used for respiratory ailments, as an expectorant and anti-tussive.

they are far less useful in construction applications. Deciduous wood is especially prized for burning since its greater relative density gives longer-lasting and hotter fires, but it is also better for cabinetry. Spruce and fir are useful for building. Different species are also more or less useful at different times of the year, particularly related to the species-specific annual risings and fallings of sap in the wood, the product of the types and quality of capital equipment available for the production and transportation of firewood. It is not uncommon to see old men with laden packhorses making way on mountain roads for 2.5 tone trucks loaded with freshly felled and bucked wood. Collecting wood then can be a complicated business, involving logistics of state regulation, procurement of equipment and assistance, and the time-geography of different sought-after species.

Household surveys conducted in 1999, 2000 and 2006 revealed that a majority of households in Bansko Obshtina engaged in some sort of non-timber forest product collecting activity (Figure 1). Nearly all households surveyed collected firewood themselves (there is little alternative for providing heat to most households in this locality); more than half collected herbs and between 25 and 35% used the forests for collecting other foodstuffs for themselves or their animals. About 20% hunted and fished and 10% collected mushrooms, often for resale to local buyers (cf. Staddon, 2009).

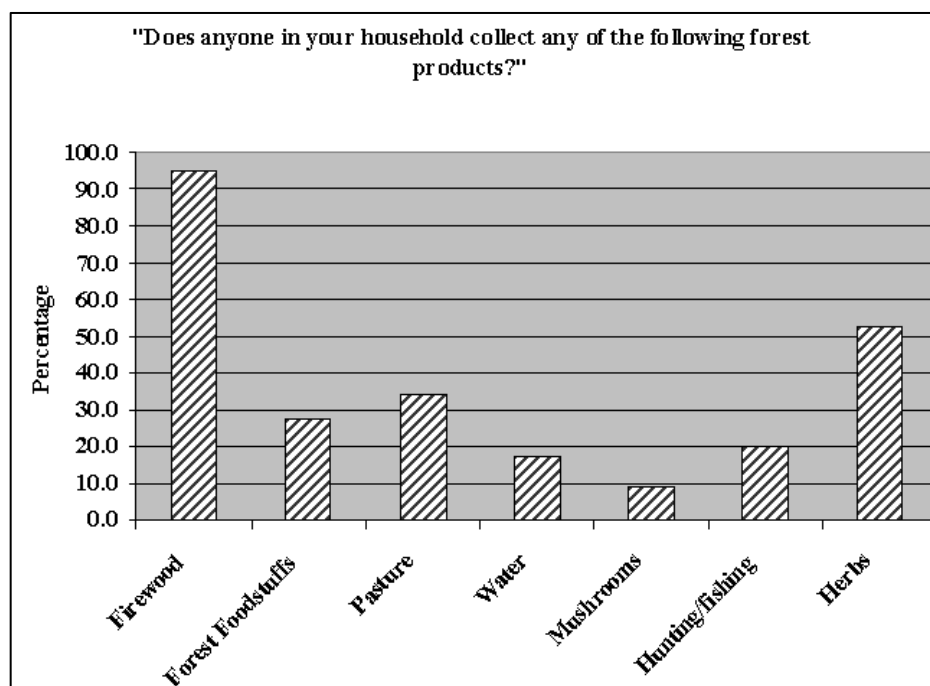


Fig. 1. – Percentage of Razlog Households who undertake informal resource extraction.

INFORMAL RESOURCE USE IN THE KŁODZKO BASIN, POLAND

The 1643 km² Kłodzko Basin (1999 population 180,653) constitutes an appendix-like extension of Poland's southwestern border with the Czech Republic (Map 1), but it is more an artefact of history than a natural geographical entity. The term refers to the area on the border between the Central and Eastern Sudety Mountains, drained by the Nysa Kłodzka River and its tributaries. The area, although belonging to different mountain ranges is an historico-geographical whole and matches the 'Kłodzko Shire' established in 1459 by the (Holy Roman) Emperor Frederick III which had occupied a central place on the 'Amber Road' since antiquity (Davies, 1981; Siebel-Achenbach 1994). It was a transitional land between the Czech lands in the south and the Silesian lands in the north and had been contested by both.⁴ The flat or hilly terrain along the Nysa Kłodzka River, settled and used for agriculture for centuries is surrounded by high mountain ranges, interrupted only in several places by breakthrough valleys or mountain passes that enabled communication (Migoń, 1996). The toponymic history of the region is confusing, for in addition to having been contested by Czech and Polish princes from the Middle Ages onwards, in the 18th century it was integrated into Frederick II's expanded Prussian state (Davies, 1981; Mazurski, 2003). Thus the capital town of the region, with its three-span St John's Bridge (a miniature replica of Prague's Charles' Bridge), and Czech Baroque architecture was at once Polish "Kłodzko" and Prussian "Glatz". After the capitulation of Germany in May 1945 the town was given to Poland and German 'Glatz' became Polish 'Kłodzko'.⁵ At that time most of the German inhabitants of the city and the region were expelled and the area was repopulated with Poles expelled from the territories annexed by the Soviet Union in what is now Western Ukraine.⁶ Starting at the end of the 19th century the whole Kłodzko Valley was transformed into one of the most popular tourist regions in Poland outside the Tatra Mountains and this development continued after WW II (Mazurski, 2003). Countless hotels, sanatoria and spa were opened to the public in the nearby towns of Bystrzyca Kłodzka (its German toponym – Habelschwerdt), Łądek Zdrój (Bad Landeck) and Duszniki Zdrój (Bad Reinerz).

Industry in Kłodzko has depended, like in Razlog, on the grafting of often disproportionately large industrial plants onto the pre-existing agricultural and manufacturing bases. In Kłodzko this included the crystal factory at Stronie Śląskie and the nearby paper factory. Though historically important the local ironworks closed down in the late 19th century, having worked out the accessible iron ores. Like in Razlog

⁴ Indeed some Czechs were initially so certain of "winning" the region after the Second World War that they published maps, prematurely as it turned out, of the area as Czechoslovak territory.

⁵ And the regional capital, 'Breslau' became 'Wrocław'.

⁶ And known as "Zabuzhite", or people from "beyond the Bug River", which now constitutes the border between Poland and Ukraine.



Map 1. – Study Area Locator Map.

tourism and recreation has also long been an important generator of revenue, with a ski resort at Czarna Gora and the natural resources of the two parks adding to the older spa developments in the valley bottoms. After 1989 the Polish “shock therapy” program led to the rapid privatization of state industry and deregulation of prices such that by 1999 of 362 registered enterprises in Kłodzko Powiat only four were state

majority controlled and almost half had foreign partners (Grykien, 2006; Grykien and Staddon, 2007; Województwo Dolnośląskie, 2004; Zuzanska-Zysko, 2005). Average wages were 1892 ZL (£283/month) and fully 23% of the economically active population was unemployed, 2/3 of whom had no right to state benefits of any kind.⁷ Thus economic homologues compound with physico-geographical ones to create a useful comparator region whose primary differences are a relative rootlessness of the local population and greater centrality within the European space-economy. What then about their attitudes to their environment and to the prospects for local development?

In summer 1999 the same survey instrument used in Bulgaria was used, *mutatis mutandis*, in Klodzko, Poland. Colleagues from the Geographical Institute at Wrocław University organised the collection of data from 206 households in the eastern part of the Klodzko Basin, around Stronie Śląskie. Overall Klodzko residents are like Razlog residents in their relatively negative assessment of the local economy: 95.1% agree that “there is little chance of getting a job here” and 65.1% disagree that “privatization of local industry is good for job creation”. Even so, Klodzko residents are much more upbeat about the prospects for the future, with 82.5% of respondents claiming to be “optimistic about the economic outlook for my community”. And respondents are overwhelmingly supportive of the two adjacent natural parks both in terms of their primary mission to protect what was, recently, very badly degraded natural resources and their secondary mission to encourage spin-off developments in nature tourism (cf. also Grykien, 2006; Zgorzelisk, 2002). Klodzko residents are somewhat less minded than the Bulgarians to expect that government should provide income or social security and they see a strong role for civil associations to influence the political process.

Patterns of direct interaction with local natural resources were quite different from Razlog. Far fewer collected firewood, 36.4% compared with over 90% in Razlog, reflecting the heavier historical reliance on coal (available in abundance from the nearby Silesian coalfields) as a primary domestic fuel source. Similarly far fewer Klodzko respondents collected forest foodstuffs than did Razlog respondents, somewhat odd perhaps given relative local abundance in both locations and the potential of earning ready cash in return for relatively undemanding work.⁸ The exception to this generalization is mushrooms, which were collected by more than 2/3 of households surveyed. Moreover Klodzko respondents were more likely to see the activities of foraging, fishing and hunting in *recreational* terms than Razlog respondents, who clearly saw the local environment primarily in terms of provender. Still, 68% collected mushrooms and

⁷ The average exchange rate in 1999 was 0.155 GBP/ZL or 6.45 ZL/GBP.

⁸ A day wandering the forest looking for mushrooms is not untaxing, but it is enjoyable in ways that other forms of work are not, and locals often professed to enjoy it more.

10% collected berries and nuts, often selling them on to middlemen, like their Razlog co-respondents. And fully 82% of Klodzko residents (as against 90% of Razlog residents) agreed that “many people in this area depend on forests for firewood and foodstuffs” even if they themselves did not admit to participating in such activities themselves. Both groups of respondents were supportive of landscape protection however, identifying industry as a common enemy. Of course it is worth remembering that the Klodzko Basin is near the epicenter of the so-called “Black Triangle”; the region of most intensive forest dieback as a result of the acid rain caused by the coal burning industries of Silesia (to the east) and Bohemia (to the west).

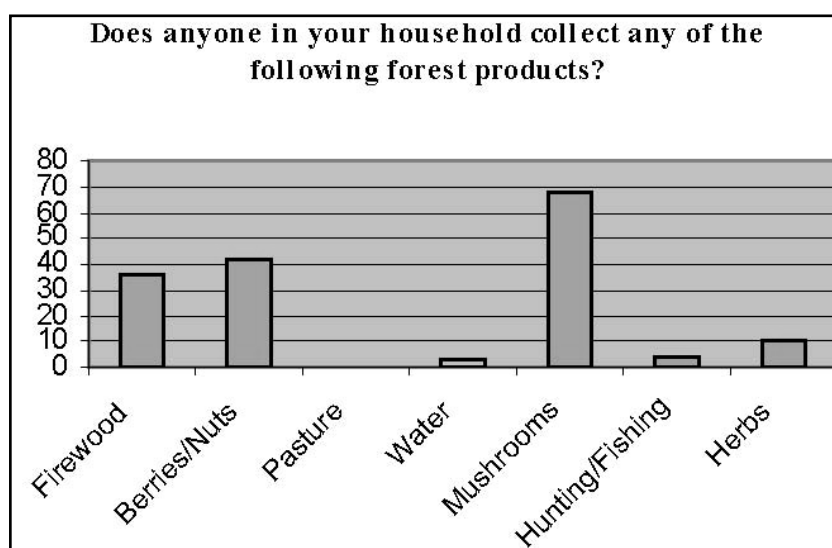


Fig. 2. – Percentage of Klodzko Households who undertake informal resource extraction.

A cultural factor which could help to explain the measurably lower informal extractive interaction with local forest resources in Klodzko follows from the points about settlement history made above. Much of the current population of the district traces its roots back to the post WW II population movements and therefore do not have the same “embeddedness” or place attachment as do the Bulgarians. In fact in some respondents there was a pronounced *estrangement* from landscape which was most apparent in discussions about environmental attitudes where Klodzko residents sometimes made it clear that this was not “their” place. Not only do many local residents feel no affinity with the physical landscape, their sense of connectedness with their neighbors is also weak. In stark contrast Razlog interlocutors often waxed lyrical about “their” mountains and forests – it clearly mattered to the Bulgarians that in *these* mountains and forests the partisans of the

19th and 20th centuries fought their fights. Moreover, some local families had associations with shrines (to St Pantaliemon, a 4th Century hermit and healer from Syria) and pilgrimage routes that went back generations. This is not at all to suggest that the Polish respondents did not care about their environments however, for they certainly did – only to point out that they did not feel a sense of cultural ownership or identity with the landscape within which they found themselves to the same extent as the Bulgarians.

CONCLUSIONS

It is a commonplace of “transition studies” (and indeed development studies more generally) that hard-pressed rural people will often turn to the resources available in their local hinterlands in order to make ends meet. However, to date there have been relatively few detailed studies of such community-forest interactions and there is also a lamentable tendency on the part of the wider public to interpret single cases such as Cellarius’s treatment of a single Bulgarian community as generalisable truths. This paper shows that whilst rural people in two other similar physical environments have made direct expropriative use of their forests, both the nature and the underlying causes of these uses diverge.

Though the communities of the Klodzko Basin are facing many of the same pressures of postsocialist transformation, local residents are generally somewhat more sanguine about the future, if not the present. Unemployment is high and plants are closing down, as in Razlog, but Klodzko respondents are placing their faith in neither the government, for whose many promises they have a healthy skepticism, nor in the market, which has created the situation, memorably described by a local resident as “Western prices and Polish wages” (Grykien and Staddon, 2007). Though much of this population still sees itself as a refugee population many local residents do want to protect their attachments, cultural, social, practical, and legal to the local environment. Attitudes appear much more proactive than reactive, as is too-often the case in the southwest of Bulgaria. Interestingly, when we began to communicate our Klodzko findings back to colleagues, friends and respondents in the Razlog Basin they immediately pointed out that a significant part of the local population were also refugees, in this case of the sudden shifts in the borderlands between Turkey, Greece, Macedonia and Bulgaria at the end of the Balkan Wars.

The primary objective of this paper was to present the outlines of a comparative analysis of community-forest interactions in two localities well-known to the authors from previous fieldwork. This is useful for many reasons not least the twin (and opposed) tendencies of academic research to either assume an undue degree of homogeneity amongst all postsocialist communities (as they do/did about socialist-era communities!) or to assume that each is an idiographic “case of one”.

Here we have sought to show that whilst there are many socio-economic similarities between the two physiographically similar localities, so too are there differences. Postsocialist transformations (and it is germane to speak of “transformations” as a plurality) therefore are a heterogeneous analytical category whose development trajectories cannot be reduced to some simulacrum of “Western modernity”.

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**THE ROMANCE BALKANS, EDS. B. SIKIMIĆ, T. AŠIĆ; BELGRADE:
INSTITUTE FOR BALKAN STUDIES, 2008, P. 386.**

This volume gathers contributions submitted at the international conference *The Romance Balkans* organized by the Institute for Balkan Studies in Belgrade from 4 to 6 November 2006. It contains 25 papers grouped into two thematic chapters: *Etymology and Language History* and *Language Contact*. Papers are written in English, French or German.

This review looks into the individual chapters and contributions, but focuses on the most important aspects of the volume as a whole. I would concentrate on both theoretical and empirical issues.

The aim of this volume is to depict the inevitable interdisciplinary approach in Balkan Studies. Even though the linguistics is the central domain of interest, the relevance of other humanities is pointed out as well.

Papers collected here deal with different classical and modern Romance languages and dialects spoken and taught in the Balkan region: Latin, Romanian, Aromanian, French, Italian, Spanish, Judeo-Spanish and others. Nevertheless, particular attention is drawn to contacts between Balkan and non-Balkan Romance languages, as well as between Romance and non-Romance Balkan languages. As pointed out in the Introduction: "the link with Slavistics remains the common thread running through almost all contributions". The issue of language contact is treated from both functional and cultural, but also from the linguistic, especially typological point of view.

The chapter *Etymology and Language History* represents the diachronic approach to Balkan linguistics, and focuses on the domain of etymology, folk-etymology and onomastics. Papers represented here emphasize the influence that Romance languages had on different Balkan languages, especially the Slavic ones. Most of the papers deal with the influence of Latin language. From the methodological point of view, this part of the volume is traditional, given that the domains of etymology and onomastics dictate the aspects and methods of research. Nonetheless, theoretical considerations in this chapter enable the wider perspective on the issue of Balkan languages.

The chapter *Language Contact* assembles diverse synchronically-oriented contributions. The majority of papers could be brought under the one of the following disciplines: anthropological linguistics, ethnolinguistics, sociolinguistics, and applied linguistics.

Several papers examine different Romanian vernaculars, namely the idioms spoken by the Bayash in Croatia, by the Karavlahs in Bosnia and Herzegovina, the Balkan-Romance vernaculars spoken in Bulgaria, as well as the Romanian vernacular spoken by immigrants in Germany. The former are using the methods of anthropological linguistics and perceptual dialectology, the later are dealing with the code-switching phenomenon.

The issue of Aromanian is investigated from various points of view: from the perspective of language death and language vitality, from the sociolinguistic aspect of story-telling, and from the perspective of its influence on Balkan Slavic languages, both in the domain of onomastics and grammar.

Beside the interdisciplinary papers dealing with macro-linguistic phenomenon, there are also papers which are more grammatically-oriented and dealing with different micro-linguistic phenomenon: the genitival constructions in Romanian, the grammatical influence of the Serbian language on the Vlach dialect, and the grammatical influence of Aromanian on the Balkan Slavonic dialects.

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One part of this chapter is dedicated to the domain of foreign language acquisition. This issue is treated from two standpoints. The first aspect, highlighted in the papers dealing with Italian and French, examines the official, formal and guided language learning in Serbia. Other aspect examines the theoretically more challenging issue of informal second language acquisition in the case of acquisition of French by the *gastarbeiters*, as well as in the case of acquisitions of Spanish through exposure to telenovelas.

This volume is very useful as it reveals not only important theoretical discussions, but also an increasing variety of methods used in studying Balkan languages.

With regard to theoretical issues, as emphasized by the editors in the Introduction, current Balkan linguistic research is interested in non-standard varieties and treats dialects as systemically equal to any standardized form of language. Special attention has been paid to topics such as minority languages, language ideology and ethnic mimicry. In this domain, the cooperation between linguistics and other humanities is seen as necessary.

I would also like to point out the methodological diversity and depict the various kinds of material represented in this volume. First of all, the majority of papers are the result of fieldwork carried out by the authors of the papers in question. Material is collected either by questionnaires or by audio recording. I would like to stress out the importance of digital recordings. On one hand, these recordings and their transcriptions enable the future research in different linguistic disciplines as well as its use in the fields of anthropology, ethnology, and other humanities. On the other hand, they represent the only possible way of preserving the recent language or dialect features and make them possible to compare with the future stages of the inevitable language change. Beside these methods, other types of material were used as well: dialectal atlases, folklore texts, archive documents, newspaper-based corpora, dictionaries, language tests, etc.

On the whole, this collection is very useful and important. It provides an encouraging illustration of the current situation in Balkan Studies. It also opens new questions for the future research. The editorial success of the volume resides in the range of important topics structured into a whole.

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